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Railroads Place Contracts for Rails and Cars

Plates, Bars and Structural Shapes Resist Pressure for Lower Prices—Pig Iron Production Slightly in Excess of September

Finished material quotations, notably on steel bars, structural shapes and plates, are no longer yielding readily to the pressure of competition among the mills for tonnage. This is one of the most encouraging developments since the advent of the present declining market and indicates that the manufacturers are at last making a determined stand against lower prices which will force them over the cost line. The low points on bars, plates and structural shapes are 1.05c, 1.10c and 1.12½c, Pittsburgh, respectively, but as these quotations were made on exceedingly desirable tonnages, they cannot be considered as representing the average market prices. Many of the mills refuse to go below 1.10c on bars, and 1.15c on plates and shapes, and it is reported that one large producer will shortly ask an advance of $1 a ton on structural material for delivery into next year. The declining market, however, has not been without its compensating features. A tremendous tonnage has been entered on mill order books and one large producer reports contracts for plates in October in excess of any month during the last year and a half. A further readjustment of wire prices has been made and the reductions since June 20 now aggregate $5 a ton.

Pig Iron

Pig iron production figures for October indicate continued heavy consumption, particularly in view of the estimated decline of 20 per cent in stocks in furnace yards since Sept. 1. The total iron production in October aggregated 2,092,061 tons, against 1,973,918 tons in September, an increase of 118,143 tons. The daily average was 67,486 tons, as compared with 65,797 tons the previous month, an increase of 1,689 tons. The most surprising feature of these statistics is the increase in the output of merchant stacks from 475,616 tons in September to 532,270 tons in October. The production of furnaces operating on steel-making iron, however, did not increase in a relative ratio. The total output of these stacks in October was 1,536,836 tons, against 1,476,879 tons in September. There was a net decline of two in the number of active stacks, from 216 in September to 214 on Oct. 31. Pig iron quotations are resisting the efforts of consumers to obtain lower prices, although in the Chicago district a decline of 50 cents a ton has been reported on some grades. Buying is limited almost entirely to small lots for immediate consumption and the furnace interests are not inclined to quote for forward shipment at present prices.

Railroad Material

The low prices quoted on freight cars have developed further heavy buying. The New York Central has divided 5,000 steel underframe box cars between the Pressed Steel Car Co. and the American Car & Foundry Co.; this makes a total of 7,000 cars ordered by this system in two weeks. The Chesapeake & Ohio railroad placed 2,000 cars with the Standard Steel Car Co., and the Pressed Steel Car Co. will furnish 600 steel gondolas to the Southern railroad. The Norfolk & Western has closed for 25,000 tons of rails for 1912 delivery, but the allotment of the tonnage has not yet been announced. The Louisville and Nashville has closed for 50,000 tons of open-hearth rails with the Tennessee company and two other southern roads are inquiring for 50,000 tons additional. The Burlington road contracts for 20,000 tons with the Illinois Steel Co. for 1912, and the Atchison road has placed a supplemental order for 10,000 tons. The Pennsylvania, New York Central and Baltimore & Ohio railroads are getting ready to place their 1912 requirements.

Plates and Structural Shapes

Large orders for plates have been placed with the mills following the recent heavy buying of steel cars. The aggregate tonnage for the cars recently closed is close to 40,000. The Carnegie Steel Co. will furnish about 2,200 tons of plates, shapes and bars for a passenger boat, placed with the American Ship Building Co., and other lake business is pending. The Maryland Steel Co. has taken the fifth boat for the American-Hamburg Steamship Co., which will require about 3,000 tons of plates and 1,500 tons of shapes. The Clyde Steamship Co. will probably place two boats with eastern builders. The most important structural contract placed in many months involves 36,000 tons, awarded to the American Bridge Co. for the main structure and part of the approaches for the Hell Gate bridge, New York. This material will be rolled by the Carnegie Steel Co. About 30,000 tons additional remain to be awarded for this work. The Pennsylvania Steel Co. is the low bidder on 2,100 tons for a bridge near Williamsport, Pa. About 25,000 tons of structural material and bars remain to be placed for the Lexington avenue subway, Philadelphia.

WORLD'S IRON MARKETS

PITTSBURGH

Railroad Buying Heavy—Plates in Good Demand.

Office of THE IRON TRADE REVIEW,
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Increased buying by transportation companies and promise of a larger volume of business from this source have given the steel market a more cheerful tone. There is less pessimistic talk as a result of the government attack against the Steel Corporation, and, while still lower prices are noted on some finished lines, developments of the week in this market have not been discouraging. Iron and steel manufacturers are satisfied with the volume of business entered on mill books, as compared with preceding months this year. The feature of the week's developments was the award of the contract to the American Bridge Co. for the Hell Gate bridge, which will require about 70,000 tons of steel. This material will be rolled by the Carnegie Steel Co. The New York Central has placed orders with the Pressed Steel Car Co. and the American Car & Foundry Co. for 5,000 additional steel underframe box cars, making a total of 7,000 cars ordered by this system within two weeks. The Carnegie Steel Co. will roll about 25,000 to 28,000 tons of plates and other material for the 3,000 cars to be built by the Pressed Steel Car Co. This company has also taken 600 gondolas for the Southern railroad and the Standard Steel Car Co. has received an order for 2,000 cars from the Chesapeake & Ohio railroad. The Riter-Conley Mfg. Co. has received a contract for a gas holder, to be built at Detroit, which will require 2,700 tons of plates, which will be rolled by the Carnegie Steel Co. One large steel company reports that mill orders for plates in October were heavier than for any of the preceding 18 months. Specifications for steel bars are heavier than at any time this year, but extremely low prices have been made on both steel bars and plates, while 1.15c, Pittsburgh, on structural steel is now generally quoted. There has been a further reduction of $1 a ton on wire products, making a total decline of $5 a ton since June 20. Pig iron is quiet with little inquiry for forward delivery. A sale of 600 tons of No. 2 foundry at $14, delivered, Pittsburgh, is noted. A feature of the scrap market is the large offerings of the railroads and other producers. The Pennsylvania railroad is taking bids on about 32,000 tons. A local mill has taken an order for 8,000 kegs of railroad spikes at $1.40, Pittsburgh.

Pig Iron.—The pig iron market continues quiet. Consumers continue to buy small lots only for immediate shipment, but the aggregate tonnage involved in these transactions represents a fair total. The sale of 600 tons of No. 2 foundry iron for delivery in November and December is reported at $14, delivered, Pittsburgh, equivalent to $13.10. valley. Owing to the fact that stocks of foundry iron in the yards of some producers have been exhausted, some difficulty has been experienced in meeting the requirements of consumers who are covered by contract. In at least one instance a prominent producer has been obliged to ship No. 1 iron on contracts on account of the shortage of No. 2 iron. The furnace of the Clinton Iron & Steel Co., which has been out for some months for repairs, was blown in Nov. 4. Basic pig iron is being offered at $12.50, valley, for prompt and first quarter shipments, although one valley interest has not quoted below $13. An inquiry has been received for 300 tons of basic for eastern shipment. The general asking price for Bessemer iron is $14.25, valley. Some furnaces will not meet $12.50, valley, for malleable. Gray forge is quiet. Pig iron prices follow:

(Prompt Shipment.)

Bessemer, valley	$14.25
Bessemer, Pittsburgh	15.15
Basic, valley	12.50
Basic, Pittsburgh	13.40
No. 2 foundry, Pittsburgh	14.00
Gray forge, Pittsburgh	13.65
Malleable, Pittsburgh	13.40

(Fourth Quarter.)

Bessemer, valley	$14.25
Bessemer, Pittsburgh	15.15
Basic, valley	12.50
Basic, Pittsburgh	13.40
No. 2 foundry, Pittsburgh	14.15
Gray forge, Pittsburgh	13.65
Malleable, Pittsburgh	13.40

Ferro-Alloys.—Bids have been submitted on a fair amount of ferro-manganese for 1912 delivery, but dealers are slow in closing. In addition to the inquiries noted recently, a steel company at Canton, O., has entered the market for 500 tons for 1912 delivery. Prices apparently are firmer than 10 days ago and nearly all sellers are quoting $38.50, Baltimore, for forward shipment. There is little demand for foreign and domestic ferro-silicon.

We quote ferro-manganese at $37 to $37.25 Baltimore, for prompt shipment, and at $38 to $38.50, Baltimore, for forward delivery. The freight rate from Baltimore to Pittsburgh is $1.95 per ton.

Fifty per cent ferro-silicon is quoted at $59 to $60, Pittsburgh, for prompt and forward delivery; 12 per cent, $24; 11 per cent, $23; 10 per cent, $22, f. o. b. Jackson, Jisco and Ashland furnaces. The freight rate to Pittsburgh is $1.90. The foreign grades are held at $1 or more a ton over domestic prices.

Plates.—The tonnage of plates booked and specified is heavy, although prices are still very low. Some fairly large orders for cars have been placed and there is a large amount of car business pending. The New York Central system, which awarded a contract to the American Car & Foundry Co. about ten days ago, for 2,000 steel underframe box cars for the Big Four, has placed an order with the Pressed Steel Car Co. for 3,000 steel underframe box cars for the Pittsburgh & Lake Erie Railroad Co. and has given the American Car & Foundry Co. another contract for 2,000 steel underframe box cars for the New York Central main line. The Chesapeake & Ohio Railroad Co. has practically closed with the Standard Steel Car Co. for 2,000 hoppers. The Southern railroad has given the Pressed Steel Car Co. an order for 600 gondolas. The 3,000 steel underframe box cars for the Pittsburgh & Lake Erie railroad will require from 25,000 to 28,000 tons of plates and other material which will be rolled by the Carnegie Steel Co. The Riter-Conley Mfg. Co., Pittsburgh, has received a contract for a gas holder at Detroit, which will require about 2,700 tons of plates. This material will be rolled by the Carnegie Steel Co. The Pittsburgh Coal Co. is in the market for center sills for 1,000 coal cars. One of the largest manufacturers of plates in the western Pennsylvania field reports that mill orders for plates in October were heavier than for any of the preceding 18 months. Prices are weak, and, while 1.15c, Pittsburgh, is the general

asking price, some tonnage has changed hands at 1.10c, Pittsburgh. We quote the market as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches, 1.10 to 1.15c. Extras are as follows, per 100 pounds: Boiler and flange steel plates, 0.10c; A. B. M. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches excepting straight taper plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches, 0.10c; circles, 0.20c. Plates in widths over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1c. Gages under ¼ inch to and including ⅜-inch plate on thin edge, 0.10c; under ⅜ and including No. 9, 0.25c. Five cents extra for less than carloads. Terms net cash in 30 days.

Sheets.—Practically all manufacturers of sheets report a fair volume of new business, but competition among the mills is keen and prices are low. One noticeable feature of this market is the more general disposition among the larger buyers to contract for forward requirements, and, while a few contracts have been made for first quarter shipment, manufacturers are not inclined to sell so far ahead at present prices. On the general run of orders the mills are quoting 1.85c, Pittsburgh, on black sheets No. 28 gage and 2.85c, on No. 28, galvanized sheets. In several instances western mills have quoted prices f. o. b. their mill, which, if figured back to a Pittsburgh basis, are considerably under the quotations local mills have made. We quote the market as follows, with $1 a ton added as the delivered price in the Pittsburgh district:

Blue annealed sheets No. 10 gage, 1.40c; black annealed sheets No. 28 gage, 1.85c to 1.90c; galvanized sheets, No. 28 gage, 2.85c to 2.90c; painted roofing sheets, $1.30 per square for No. 28 gage, 2½-inch corrugation; galvanized roofing sheets, $2.50 per square for No. 28 gage, 2½-inch corrugation f. o. b. Pittsburgh.

Tin Plate. — While buyers of tin plate apparently are in no hurry to close for 1912 requirements, a fair amount of business for shipment next year has been booked at $3.40, Pittsburgh, for 14 x 20, 100-pound cokes. Mill operations are restricted, as it is too early for manufacturers to make shipments on contracts for next year. We quote the market as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.40 f. o. b. mill, Pittsburgh district.

Rails and Track Material.—No action has been taken on the two inquiries for standard steel rails for 1912 delivery referred to last week, but it is expected that some awards will be made in the near future. Formal inquiries for rails for next year will be made within a few weeks by the larger trunk lines. In some quarters there is talk of a readjustment of prices, but nothing definite has developed. Local rail mills continue to operate at practically the same capacity as last month, and report fair orders from domestic roads for small lots. There is a fair demand for light rails for both domestic and export trade. Some railroads have entered the market for spikes and a local mill has booked 8,000 kegs at $1.40, Pittsburgh. Rail quotations follow, the base price on open-hearth sections being 1.34c per pound at the mill:

Fifty-pound and heavier, 1.25c per pound; carloads and less than 500 tons, 1.34c per pound; light rails on base weight of 40 to 45 pounds, 1.16c, the schedule on the other weights being irregular and subject to negotiations; angle splice bars for standard sections, 1.50c, Pittsburgh; track bolts, 2.20c to 2.25c, Pittsburgh.

Railroad Spikes.

4½, 5 and 5½ and 9/16	$1.40
3, 3½, 4, 4½ and 5 x ½	.10
3½, 4 and 4½ x ⅞	.20
3, 3½, 4 and 4½ x ⅝	.30
2½ x ⅝	.40
2½, 3 and 3½ x ⅞	.60
2 x ⅞	.80

Steel.—Billet and sheet bar mills in the western Pennsylvania district have received liberal contract specifications for November shipments. Firm offers are still being made by buyers to contract for first half requirements, but so far no large tonnage has been placed for that period. As some of the mills on the outskirts of the Pittsburgh territory are quoting f. o. b. mill, it is difficult to give accurate quotations. Most mills continue to ask $19 to $19.50, Pittsburgh, for open-hearth billets, with an advance of $1 a ton for sheet bars; $20, Pittsburgh, for Bessemer billets and $21, for Bessemer sheet bars, although some mills are quoting sheet bars for immediate shipment at 50 cents a ton lower, f. o. b., either Pittsburgh or Youngstown. Sales of forging billets are limited to small lots and some low quotations have been made. Quotations on billets and sheet bars follow:

Bessemer 4 x 4 billets with 0.25 carbon and less are quoted at $20, with the usual extras for size and analysis, and open-hearth rolling billets, $19 to $19.50; Bessemer sheet and tin bars are quoted at $21, and open-hearth sheet bars are quoted at $20 to $20.50, f. o. b. Pittsburgh or Youngstown, with full freight to destination added. Forging billets are quoted at $24, Pittsburgh.

Hoops and Bands.—New orders and specifications for hoops and bands are unsatisfactory. Competition for new business is keen and further price concessions are noted. Some mills have shaded 1.30c, Pittsburgh, on hoops, although this represents the general asking price. Quotations follow:

Hoops in carload lots, 1.30c, Pittsburgh; in less than carload lots, 1.40c; bands, 1.10c to 1.15c, base, with net extras, as per standard steel.

Merchant Bars.—Steel bar specifications are as heavy as at any time during this year. Practically all new business now being placed is for immediate rolling, although some of the larger buyers are showing a disposition to cover for first half. Despite the fact that some of the larger manufacturers entered a larger tonnage of steel bars in October than in any single month this year and that mill orders so far this month have been heavy, prices are still very low. Mills continue to quote 1.10c to 1.15c, Pittsburgh, but a much lower figure has been quoted on particularly desirable business for immediate rolling. Demand for bar iron is light. The regular bi-monthly wage examination, based on actual sales of bar iron in September and October will be made Nov. 13 and present indications point to a further reduction in the wage rate for puddlers. Manufacturers of shafting report slightly increased specifications. Quotations follow:

Common iron bars, 1.20c, Pittsburgh; Bessemer and open-hearth steel bars, 1.10c to 1.15c plow and cultivator, 1.20c; channels, angles, zees, tees, under 3 inch, 1.25c, all f. o. b. mill. The following differentials are maintained on steel. Less than 2,000 pounds of a size, 0.35c advance. Cold rolled and ground shafting, 60 and 5 per cent to 60 and 10 per cent off in carloads and 57 per cent in less than carloads, delivered in base territory.

Muck Bar.—Demand for muck bar is light and no important transactions have been reported. Muck bar is quoted nominally at $28, Pittsburgh, with a premium of $1 a ton for all pig bars.

Structural Material.—In the immediate Pittsburgh district only a limited number of structural lettings are noted and practically all awards during the past 10 days have been for small lots ranging from 100 to 200 tons. Competition for new business is keen and the 1.15c, Pittsburgh, quotation is now general, but in a few instances this figure has been shaded. The Hell Gate bridge, which will be built by the American Bridge Co., is the most important structural contract placed in many months. This work involves approximately 70,000 tons of steel which will be rolled by the

Carnegie Steel Co. Structural material prices follow:

Beams and channels, 15 inches and under, 1.15c; over 15 inches, 1.25c; zees, 1.15c; tees, 1.20c; angles, from 3 to 6 inches, 1.15c; over 6 inches, 1.25c; universal and sheared plates, 6¼ inches wide and wider, 1.20c.

Merchant Pipe.—The National Tube Co. and independent manufacturers have issued new discounts on oil country goods. The new list carries an average reduction of about 5 per cent, as compared with the former official card. Jobbers are specifying more liberally against contracts for iron and steel pipe and the discounts of Oct. 2, apparently are being maintained. No important awards for line pipe were made during the week, although estimates are being prepared on some fairly large pipe line projects in the west on which work will be started next spring. Official discounts in carload lots, subject to the usual preferential discount to the larger buyers, merchant pipe, where specified, being offered in from ⅛ to 6 inches, follow:

Iron and Steel Pipe Basing Prices.

	Steel.		Iron.	
	Butt weld.			
	Black.	Galv.	Black.	Galv.
¼, ⅜ inch	73	53	68	48
½ inch	74	64	69	59
⅝ inch	77	67	72	62
¾ to 1¼ inch	80	72	75	67
2 to 3 inches	81	74	76	69
	Lap weld.			
2 inches	77	70	72	65
2½ to 4 inches	79	72	74	67
4½ to 6 inches	78	70	73	65
7 to 12 inches	76	66	71	61
13 to 15 inches	..	..	47	..
Extra Strong, Plain Ends.				
	Butt weld.			
⅜, ¼, ½ inch	70	60	65	55
½ inch	75	69	70	64
¾ to 1¼ inch	79	73	74	68
2 to 3 inches	80	74	75	69
Extra Strong, Plain Ends.				
	Lap weld.			
2 inches	76	70	71	65
2½ to 4 inches	78	72	73	67
4½ to 6 inches	77	71	72	66
7 to 8 inches	70	60	65	55
9 to 12 inches	65	55	60	50
Double Extra Strong, Plain Ends.				
	Butt weld.			
½ inch	65	59	60	54
¾ to 1¼ inch	68	62	63	57
2 to 3 inches	70	64	65	59
Double Extra Strong, Plain Ends.				
	Lap weld.			
2 inches	66	60	61	55
2½ to 4 inches	68	62	63	57
4½ to 6 inches	67	61	62	56
7 to 8 inches	60	50	55	45

Plugged and reamed pipe is furnished at 2 points higher price, either butt or lap weld.

Boiler Tubes.—A fair amount of new business in locomotive boiler tubes is reported by local mills. Prices are only fairly firm. Official discounts on steel and charcoal iron boiler tubes in carload lots, follow:

1¼ to 2¼ inch	65
2½ inch	67½
2¾ to 3¼ inch	72
3½ to 4½ inch	75
5 and 6 inch	67½
7 to 13 inch	65
1½ inch	48
1¾ to 2¼ inch	50
2½ inch	55
2¾ to 5 inch	60

To destination east of Mississippi river will be sold at delivered discount for carloads lowered by 2 points, for lengths 22 feet and under; longer lengths, f. o. b. Pittsburgh. Usual extras to jobbers and boiler manufacturers.

Wire Products.—Further concessions on wire products developed during the week and some mills have booked considerable business at $1.55, Pittsburgh, for nails, and $1.35 for plain wire. These prices, however, apply only to prompt shipment business. The total reduction on wire products since June 20 is $5 a ton. On June 20, there was a reduction of $2 a ton; late in August another cut of $1 a ton was made. A similar reduction was announced during the latter part of October. While a fair amount of business has been booked during the past 30 days, the capacity of the mills is greatly in excess of demand. We quote the market as follows:

Wire nails, jobbers, carload lots, $1.55 to $1.60; retailers' carload lots, $1.60 to $1.65; cut nails (western makers), jobbers' carload lots, $1.50 to $1.55; painted barb wire, jobbers' carload lots, $1.55 to $1.60; retailers' carload lots, $1.65, with 30c for galvanizing; plain wire to jobbers in carloads, $1.35 to $1.40; and to dealers, in carloads, $1.40 to $1.45; polished staples, $1.55; galvanized staples, $1.85.

Wire Rods.—As a result of the recent reduction in prices of finished products, further weakness has developed on wire rods. Bessemer and open-hearth rods are quoted at $25, Pittsburgh.

Coke.—Consumers of both furnace and foundry coke continue to take shipments against contracts in a satisfactory manner and some interest is now manifested in first quarter requirements. Sales of furnace coke for prompt shipment have been made at $1.50, ovens. There has been no buying of any importance for delivery next year, but the indications are that some contracts will be made shortly. Production in the Connellsville region last week made a gain of 9,945 tons, as compared with the preceding week. The gain was entirely with the furnace interests, which showed an increase of 10,281 tons, while the merchant interests lost 746 tons. Shipments showed a gain of 164 cars, as compared with the preceding week. In addition to taking the full tonnage specified in their contracts, a few merchant interests have bought small lots of furnace coke for shipment this month, and indications are that production in November will show an increase, as one or two additional furnaces will be blown in this month. Standard Connellsville furnace coke, for prompt shipment, is quoted at $1.50, ovens, and for delivery over the next two months, $1.55 to $1.60, ovens. High grade furnace coke is quoted at $1.90 to $2, ovens, for prompt shipment, and $2 to $2.40, ovens, for forward delivery. The Connellsville *Courier's* figures for the week ending Oct. 28, show 26,273 active ovens with an output of 320,301 tons, as compared with 26,261 active ovens and a production of 310,766 tons, the previous week.

Old Material.—A feature of the local scrap market is the extremely heavy offerings of old material by the railroads and other producers. The Pennsylvania Railroad Co. is taking bids on about 32,000 tons of scrap, which includes 20,000 tons of heavy melting steel. This is an increase of 10,000 tons, as compared with monthly offerings during the past five or six months. Offerings of other producers are also heavier this month, due to the fact that a number of the larger producers did not dispose of their entire holdings in October on account of the low prices prevailing. There is a fair amount of scrap moving in this territory and some dealers are more optimistic. Trading in heavy melting steel has been heavier than reported and upward of 8,000 tons of this grade has changed hands during the past two weeks. Scrap prices, gross tons, Pittsburgh district delivery, including Monessen, Sharon, Steubenville, Brackenridge and Follansbee, follow:

Heavy melting scrap	$12.00 to 12.25
Rerolling rails	12.50 to 13.00
Malleable	11.50 to 12.00
Bundled sheet scrap	10.00 to 10.50
Iron axles	22.00 to 23.00
Old iron rails	14.50 to 15.00
Stove plate	9.00 to 9.50
No. 1 wrought scrap	12.50 to 13.00
Old car wheels	12.25 to 12.75
Low phosphorus	14.50 to 15.00
Machine shop turnings	8.75 to 9.00
Cast borings	8.00 to 8.50
No. 1 cast scrap	12.50 to 12.75

CHICAGO

Finished Material Tonnage Increases. —Pig Iron Quiet.

Office of THE IRON TRADE REVIEW, 1328 Monadnock Block, Nov. 7.

A more cheerful feeling is manifested in the iron and steel trade in the west and the affects of the suit of the government against the Steel Corporation are rapidly passing away. Specifications for plates, structurals, rails, billets and other heavy finished products are very encouraging and fabricating contracts have shown some increase. Prices remain weak and show little change. Manufacturers of the lighter finished lines, such as sheets, wire and tubes, continue to find it difficult to obtain a sufficient tonnage for satisfactory mill opera-

tion. Although sheet mills in this territory are running now at 85 per cent of their capacity, this business has only been obtained at a further sacrifice in prices. The same is true of the wire trade and some makers have accepted business at 1.73c, Chicago, on nails and 1.53c on plain wire.

Pig Iron.—The pig iron market continues quiet. The foundry melt is being maintained fairly well and the depleted condition of foundry stocks is indicated by the comparatively heavy buying for current consumption. Practically every pig iron interest in Chicago sold a heavier tonnage during October than in September, but comparatively little of it is for extended forward shipment. There is, however, a vast amount of iron to be had and prices are correspondingly depressed. Southern No. 2 foundry is now easily obtainable at $14.35, Chicago, for first quarter delivery and under certain conditions for first half. The local makers of northern iron are accepting business at $14 furnace, for No. 2 foundry, which is a cut of 50c a ton below the prices that have prevailed since last summer. High silicon irons are also displaying considerable weakness and $17.40, Chicago, for 8 per cent is said to have been shaded on desirable business. A Racine foundry is in the market for 100 tons of foundry iron, 8 per cent silicon.

The following prices represent the market for Chicago delivery, except northern foundry No. 2 and malleable Bessemer made in local furnaces, which are quoted f. o. b. furnace:

(Shipment this year.)

Lake Superior charcoal	$16.50
Northern foundry No. 2	14.00
Southern foundry No. 2	14.35
Southern silveries, 5 per cent silicon	15.60
Jackson Co. silveries, 8 per cent	17.40
Malleable Bessemer	14.00
Alabama basic	14.35

Billets. — The market presents no features of interest. Forge shops continue to buy in carload lots according to their current requirements. We quote, open-hearth forging billets $25 to $26, and re-rolling billets, $22, Chicago.

Merchant Bars.—While the price of 1.18c, Chicago, on steel bars, equivalent to 1.10c, Pittsburgh, has been shaded, the lower quotations have not been sufficiently numerous to justify the announcement of a market level at anything below 1.18c. In several instances consumers having contracts at a higher price have requested the makers to readjust them on the basis of 1.18c, Chicago, and this has been done, but no further concessions are being offered. The volume of business continues to be comparatively satisfactory, one large independent interest reporting that its tonnage booked in October was only 15 per cent below what it considers normal. The warehouse business remains fairly satisfactory.

We quote, Chicago delivery, as follows:

Bar iron, 1.17½c to 1.23c; hard steel bars, rerolled, 1.18c to 1.23c; soft steel bars and bands and small shapes, 1.28c to 1.33c, base; hoops, 1.53c to 1.58c; smooth finished machinery steel, 1 inch and larger, 1.78c. Shafting 60 per cent off list for carload lots, 57 per cent off for less.

On iron and steel from local stock, we quote, as follows:

Bar iron, 1.55c to 1.65c per pound base; soft steel bars, 1.55c to 1.65c per pound base; soft steel hoops, 1.80c to 1.90c, full extras.

Structural Material. — There has been a better volume of fabricating contracts placed. Noelke-Richards Co. has taken 2,550 tons for the Merchants' National Bank building, Indianapolis; the McClurg apartments, Chicago, 1,000 tons, have been awarded to the Holmes-Pyott Co. In the west, the Walker building at Salt Lake City, 1,112 tons, has been awarded to the Minneapolis Steel & Machinery Co. Two small orders were placed last week by the Burlington railroad, including one for 368 tons for deck plate girder spans and one for 121 tons for 30-foot, I-beam spans; both were given to the McClintic-Marshall Construction Co. The General Chemical Co., Rose Lake, Ill., has let a contract for a building which will require 125 tons of structural material. Other fabricating contracts reported in this market last week include a malt house and kiln for the Conrad Schrier Co., Sheboygan, Wis., 355 tons, let to Worden-Allen Co., and two 152 x 18 foot highway spans and a 120-foot approach over the Feather river at Gridley, Butte county, Cal., 249 tons, let to the American Bridge Co.

We quote, structural material, f. o. b. Chicago, as follows:

Beams and channels, 15 inches and under, 1.33c to 1.38c. For extras, see Pittsburgh report.

Plain material out of store is as follows:

All angles, 3 inches and larger, including 6 inches, $1.65 to $1.75 per 100 pounds; angles over 6 inches, $1.75 to $1.80 per 100 pounds, base; beams, 3 to 15 inches, inclusive, $1.65 per 100 pounds, base; channels, 3 inches and larger, $1.65 per 100 pounds, base.

Rails and Track Fastenings.—Local rail mills are fairly well supplied with current orders and western lines are commencing to show some active interest in their future requirements. The Burlington is negotiating in this market for approximately 25,000 tons of standard open-hearth rails and one or two other affiliated companies are reported to be in the market. It is announced that the Cleveland Short Line has ordered 3,200 tons of rails from the Illinois Steel Co. and that the Kansas City, Mexico & Orient has placed 2,000 tons with the leading interest. Prices on track supplies continue to be more or less irregular.

We quote, light rails f. o. b. Chicago, and track fastenings, f. o. b. Joliet, as follows:

Light rails, carloads, 40 to 45-pound, 1.16c to 1.20½c; 30 to 35-pound, 1.19½c to 1.24c; 16, 20 and 25-pound, 1.20½c to 1.25c; 12-pound, 1.25c to 1.29½c.

Light section relayers, 45 pounds and under, subject to inspection, $21 to $23; standard section relaying rails, subject to inspection, $23.50 to $24.

Track fastenings, f. o. b. Joliet, angle bars, 1.50c; railroad spikes, 1.60c, smaller size spikes, 1.70c, base; track bolts with square nuts, 2.00c base.

Plates.—The market may be fairly quoted at 1.33c, Chicago, on tank plates in base sizes. Some tonnage has been placed at a slightly lower figure, but this has been found to include plates less than 60 inches wide only. Local mills continue to be very well supplied with orders and further car inquiries are noted. The Texas & Pacific Coal Co., Thurber, Tex., is negotiating with the Pressed Steel Car Co. for 100 gondola cars. The Wichita Falls Railway is said to be in the market for 300 box cars. The Northern Pacific Railway is inquiring for 50 center sills for reinforcing 40-ton cars. The Illinois Central is in the market for ten 60-foot postal cars; seven 70-foot baggage and mail cars; nine 70-foot baggage and smoking cars; 26 70-foot baggage cars; four 70-foot cafe cars; four 70-foot parlor cars; four 70-foot dining cars; ten 70-foot chair cars, and 40 70-foot coaches. These cars will all have steel underframes. The Burlington has ordered 500 gondola cars from the American Car & Foundry Co. The Iroquois Iron Co., Chicago, is in the market for ten all-steel, 50-ton coal cars.

We quote, mill prices, f. o. b. Chicago, as follows:

Tank plates, ¼ inch thick, 6¼ to 100 inches wide, 1.33c to 1.38c. For extras, see Pittsburgh report.

Store prices are as follows:

Tank steel, ¼ inch and heavier, up to 72 inches wide, 1.65c.

Sheets.—The local maker is now operating 17 out of its 18 mills, but

the business has been obtained only at some sacrifice in prices. Store prices on sheets continue to be fairly well maintained, but mill quotations are sagging and have dropped off to 2.03c, Chicago, for No. 28 black and 3.03c for No. 28 galvanized. Consumers continue to buy from hand to mouth.

We quote, store prices, f. o. b. Chicago, as follows:

For mill prices, see Pittsburgh report. Freight to Chicago, 18 cents.

Blue annealed, No. 10, 1.95c; No. 12, 2.05c. Box annealed, No. 28, 2.40c. Galvanized, No. 28, 3.35c.

Wire Products.—The wire market shows no particular change. The makers continue to take attractive business on the basis of 1.60c, Pittsburgh, for wire nails, and other products in proportion. Local mills are oerating at about 75 per cent of their capacity and shipments are moderately heavy.

We quote, f. o. b. Chicago as follows:

Wire nails, jobbers, carload lots, $1.83; retailers' carload lots, $1.88; retailers' less than carload lots, $1.98; painted barb wire, jobbers' carload lots, $1.83; retailers' carload lots, $1.88; retailers', less than carload lots, $1.98, with 30c for galvanizing; plain wire to jobbers, $1.63; plain wire, retailers' carload lots, $1.68.

Merchant Pipe and Tubes.—A comparatively active market for the more common sizes of merchant pipe is noted and jobbers are taking tonnages rather freely. There is also a slight improvement in the tube trade and specifications against contracts for boiler tubes are somewhat more liberal.

We quote, merchant pipe and tubes, f. o. b. Chicago, as follows:

Iron and Steel Pipe Basing Prices.

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
⅛-¼ inch	70.2	49.2	63.2	41.2
⅜ inch	74.2	63.2	66.2	56.2
2 in. to 3 in.	78.2	70.2	72.2	64.2
4½-6 inches	75.2	66.2	69.2	60.2
7-12 inches	72.2	61.2	67.2	56.2
Extra Strong Plain Ends.				
⅜ inch	71.2	64.2	54.2	52.2
2-3 inches	76.2	69.2	61.2	55.2
7-8 inches	66.2	55.2	59.2	47.2
Double Extra Strong.				
⅜ inch	59.2	51.2	....	....
2-3 inches	64.2	56.2	....	....
7-8 inches	54.2	42.2	....	....

Tubes.

	Lap weld steel.	Charcoal iron.	Shelby seamless.
	Per cent.	Per cent.	Per cent.
1 inch	39	..	57½
1¼ to 2½ inch	55	40	35
2¾ to 3¼ inch	65	50	46
3½ to 4½ inch	67½	50	46
5 to 6 inch	55	..	..

Cast Iron Pipe.—The United States Cast Iron Pipe & Foundry Co. has been formally awarded 1,800 tons of from 6 to 24-inch water pipe, at Long Beach, Cal. The letting at Muskegon, Mich., which had been announced for Nov. 6, has been postponed to Nov. 13, and the city is now asking for bids on riveted steel pipe. Hill City, Kas., is in the market for 300 tons and Mound City, Kas., for 120 tons of water pipe.

We quote, f. o. b. Chicago, as follows:

Four-inch water pipe, $26.50; 6 to 12 inches, $24.50, larger sizes, $24; gas pipe, $1 a ton higher.

Old Material.—There has been little change in the scrap market situation during the past week. Stocks in the hands of melters and dealers are almost dangerously low, but there is no incentive under present market conditions to buy freely. Railroad holdings on the other hand are comparatively heavy, and in one or two instances exceptionally large. With the exception of a slight reduction on old steel rails, 3 feet and under in length, there were no price changes of consequence during the week.

We quote, for delivery in consumers' yards, Chicago, as follows:

GROSS TONS.

Old car wheels	$12.00 to 12.50
Old iron rails	14.50 to 15.00
Rerolling rails (5 ft. and over)	12.00 to 12.50
Old steel rails (3 ft. and under)	10.75 to 11.25
Frogs, switches and guards	10.00 to 10.50
Heavy melting steel	9.75 to 10.25
Shoveling steel	9.25 to 9.75

NET TONS.

No. 1 R. R. wrought	$10.00 to 10.50
No. 2 R. R. wrought	9.00 to 9.50
Arch bars and transoms	13.50 to 14.00
Knuckles, couplers and springs	10.00 to 10.50
Shafting	13.50 to 14.00
Iron car axles	16.75 to 17.25
Steel car axles	15.50 to 16.00
Locomotive tires	14.00 to 15.00
Dealers' forge	9.25 to 9.75
Pipe and flues	7.00 to 7.50
No. 1 cast	10.50 to 11.00
No. 1 busheling	8.00 to 8.50
No. 2 busheling	6.00 to 6.50
No. 1 boiler cut	7.00 to 7.50
Boiler punchings	12.50 to 13.00
Cast and mixed borings	5.00 to 5.25
Machine shop turnings	6.00 to 6.50
Railroad malleable	9.50 to 10.00
Agricultural malleable	9.25 to 9.75
Angle bars, splices, etc., iron	12.00 to 12.50
Angle bars, steel	8.75 to 9.25
Stove plate and light cast scrap	9.25 to 9.75

Finished Material Quotations No Longer Yield to Competition.

Office of THE IRON TRADE REVIEW, Penton Bldg., Nov. 7.

Iron Ore.—Ore shipments during October were 4,769,965 gross tons, a decrease of 107,476 tons, compared with the corresponding month last year. The movement to Nov. 1 is 29,607,102 gross tons, against 39,978,308 tons during the same period in 1910, a decrease of 10,371,205 tons. The total movement for the year will not greatly exceed 32,000,000 tons. The Pittsburgh Steamship Co. has retired its barges and last cargo will be shipped on Nov. 18. Reduced freight rates on ore from lower lake ports are being agitated by Pittsburgh and valley furnace interests and it is probable that a complaint will be filed with the interstate commerce commission against existing tariffs.

On base ores with the guarantee of 55 per cent on old range and Mesabi Bessemer, and 51½ per cent on old range and Mesabi non-Bessemer, we quote as follows: Old range Bessemer, $4.50; Mesabi Bessemer, $4.25; old range non-Bessemer, $3.70; Mesabi non-Bessemer, $3.50.

Pig Iron.—Sales of foundry grades are limited to small lots for immediate shipment and notwithstanding the low quotations that are being made, consumers are not interested in forward requirements. Local, No. 2, is quoted at $13, delivered, although a number of interests refuse to shade $13.25. The spread between Bessemer and basic can hardly be maintained although the absence of heavy buying of Bessemer permits the present nominal prices to be quoted. For Cleveland delivery for the remainder of the year, we quote as follows:

No. 1 foundry	$13.50 to 13.75
No. 2 foundry	13.00 to 13.25
No. 2 southern	14.35
Gray forge	12.50
Bessemer	15.15
Lake Superior charcoal	17.00
Jackson Co. 8 per cent silvery	17.05

Coke. — Foundry coke quotations cover a wide range and while some shippers are asking $1.90, Connellsville ovens, for 72-hour grades, other interests refuse to quote below $2.35. Coke quotations follow:

Connellsville furnace coke, $1.50 to $1.55 for prompt delivery, and $1.60 for last quarter; Connellsville foundry coke, $1.90 to $2.35 for prompt, and $2.15 to $2.35 for first quarter.

Finished Material.—With the approach of the close of the navigation season, northwestern railroads are placing contracts for track supplies for lake shipment for use during the early spring months. The Grand Trunk has purchased 3,000 kegs of spikes, the Northern Pacific 3,000 kegs of track bolts, and the Great Northern is inquiring for 3,000 kegs of track bolts and 14,800 kegs of spikes. Finished steel quotations, notably on bars, plates and structural shapes, are no longer yielding readily to the pressure of consumers for lower values. While it is true that 1.10c, Pittsburgh, has been shaded on bars, the majority of the mills refuse to quote below this basis. Skelp, wide sizes, has been quoted at 1.10c,

Pittsburgh, although most of the mills refuse to shade 1.15c on this material and tank plates. Further shading of structural shapes is reported although the bulk of the tonnage is being placed at 1.15c, Pittsburgh. Plates from warehouses are quoted at 1.55c, and shapes 1.65c. Bids have been submitted on 2,200 tons of steel for the Seneca building, Buffalo, and the contract will probably be placed this week. Steel for the Harvey hotel is again under consideration although it is not definitely known whether this structure will be of steel or reinforced concrete construction. The steel for the new passenger steamer to be built by the American Ship Building Co., will be furnished by the Carnegie Steel Co.; including bars, plates and structural shapes, approximately 2,500 tons of steel will be required.

Old Material.—Three railroad lists were closed the middle and latter part of last week and most of the tonnage was sold at higher prices than had previously prevailed. The Wheeling & Lake Erie's heavy steel sold at $12.25 along the company's line. Local consumers of heavy steel are still in the market and are getting some material at about $11, but local dealers are loathe to part with their scrap at this price, preferring to pile it. Inquiries are at hand from Canton, O., and other outside buyers of various grades appear somewhat interested. The general market here remains quiet, but fairly firm. We quote, gross tons, f. o. b. Cleveland, as follows:

Old iron rails	$14.00 to 14.50
Old steel rails (under 6 ft.)	12.00 to 13.00
Old steel rails (over 6 ft.)	12.75 to 13.00
Relaying rails	20.00 to 21.00
Old car wheels	12.00 to 12.50
Old steel boiler plate	9.50 to 10.00
Malleable iron (railroad)	11.50 to 12.00
Steel axles	18.00 to 18.50
Axle turnings	8.50 to 9.00
Malleable iron (agricultural)	10.75 to 11.25
Heavy steel	11.00 to 11.50
Country mixed steel	9.00 to 9.50

We quote, net tons, as follows:

No. 1 R. R. wrought	$11.00 to 11.50
No. 1 busheling	9.00 to 9.50
No. 1 machine cast	11.00 to 11.50
No. 1 dealers' wrought	10.00 to 10.50
Machine shop turnings	6.50 to 6.75
Pipes and flues	8.50 to 9.00
Wrought drillings	6.50 to 6.75
Stove plate	9.00 to 9.50
Cast borings	6.00 to 6.50
Wrought iron piling plate	15.00 to 15.50
Wrought iron arch bars	15.50 to 16.00

A plant will be erected at Nashville, Tenn., by the White Adding Machine Co., which has been organized with $400,000 capital stock for the manufacture of adding machines and other mechanical devices for use in business. L. Allen Cook, E. M. Camp, Benjamin F. Barry and others are interested.

CINCINNATI

Little More Pig Iron Buying for Present Needs.

Office of THE IRON TRADE REVIEW,
808 Provident Bank Bldg., Nov. 7.

Pig Iron.—The small demand for pig iron that developed a week ago is still holding to some extent, but as a general proposition, the market is quiet and without special feature. It would appear that the majority of the sales that have been made during the week, have not been the result of general inquiries, but of a little quiet buying that consumers were obliged to consummate in order to keep plants in operation. Reports indicate that southern furnaces are for the most part willing to sell through the first half of next year on a $10 Birmingham basis, but up to this time approximately light tonnage has been sold for next year's delivery. There has been a little demand for special grades of iron, and a scattered tonnage of high silvery and charcoal making irons is reported from various sections. There appears to be no radical change in the northern situation and the market for any delivery up to and including the first half of next year is still quotable at $13 Ironton, with some furnaces holding for $13.50 for next year's business. The indications are that several of the pipe industries have bought a fair tonnage of iron for various plants during the week. The exact tonnage, however, could not be ascertained. A central Ohio melter bought 1,000 tons of northern foundry grades, with several small sales in the same territory. There is an inquiry from a Michigan concern for 1,000 tons of malleable. We quote prices at Cincinnati based on freight rate of $3.25 from Birmingham and $1.20 from Ironton as follows:

Southern foundry No. 2	13.25 to 13.50
Southern foundry No. 3	12.75 to 13.25
Southern foundry No. 4	12.50 to 12.75
Southern gray forge	12.50 to 12.75
Mottled	12.25 to 12.50
Southern No. 1 soft	14.70 to 15.20
Southern No. 2 soft	14.20 to 14.70
Standard southern car wheel	25.50
Northern No. 2 foundry	14.20
Northern No. 3 foundry	13.70
Northern No. 4 foundry	13.20
Jackson county 8 per cent silicon	16.95

Coke.—The market for both foundry and furnace brands is extremely quiet. Requisitions on foundry contracts continue good, and consumers are taking all offered. Nothing in the way of furnace inquiries are pending at this time and general conditions are featureless. Prices are said to be holding fairly well at last week's quotations. We quote from the leading coke producing districts as follows:

	Prompt shipment.	Contract second half.
Connellsville district:		
Foundry coke	$2.00 to 2.25	$2.00 to 2.40
Furnace coke	1.55 to 1.65	1.75 to 1.90
Wise county district:		
Foundry coke	2.00 to 2.25	2.00 to 2.25
Furnace coke	1.75 to 2.00	*Sliding [scale basis.
Pocahontas district:		
Foundry coke	2.00 to 2.10	2.00 to 2.10
Furnace coke	1.50 to 1.75	1.60 to 1.75
New river		
Foundry coke	2.50 to 3.15	2.60 to 3.25
Furnace coke	2.10 to 2.15	2.10 to 2.20

*Sliding scale basis means $1.60 for coke based on $9, Birmingham, for pig iron, with an advance of 16⅔ per cent of the amount over $9 at which pig iron is quoted. This is the usual basis. Other forms of sliding contracts are also made.

Finished Material.—Contracting during the week has been light. Specifications in contiguous territory have been fairly good, but the tonnage has been for small lots. Prices continue about on the same basis, plates being quotable at 1.15c, shapes 1.20c and steel bars 1.10c Pittsburgh.

Old Material.—There is little demand for anything on the list and offerings are light. Dealers however report a steady increase in stocks on yards, as consumers are unwilling to pay prices asked. The local mills are taking some tonnage on contract, but the general trend is unsatisfactory and dull. Prices appear to be unchanged, but weak, and are about represented by the following schedule:

GROSS TONS.

Old iron rails	$12.00 to 13.00
Old steel rerolling	11.00 to 11.50
Old iron axles	18.00 to 18.50
Steel melting scrap	9.50 to 10.50
Car wheels	10.50 to 11.00

NET TONS.

Old No. 1 R. R. wrought	$10.50 to 11.50
No. 1 machinery	10.00 to 10.50
No. 1 busheling	8.00 to 9.00
Stove plate	6.50 to 7.00
Machine shop turnings	5.50 to 6.00
Cast borings	4.50 to 5.00
Grate bars	6.00 to 7.00
Sheet iron bundled	6.50 to 7.50
No. 1 cast scrap	10.00 to 10.50
Heavy turnings	6.00 to 7.00

PHILADELPHIA

Sentiment Shows Improvement.—Rails and Boat Awards.

Nov. 6.

There is a better tone to the iron and steel market in this district, much of which is as yet based on sentimental grounds. It is becoming clearer that the governmental attack upon the Steel Corporation is not likely to prove an obstructing factor in the market and in some respects it seems to have cleared the situation of con-

siderable of its former uncertainty and to this extent, it has in reality been a helpful rather than a retardent influence. Low prices seem to be bringing more finished business into clearer prospect and pig iron is slightly more active. Without any substantial reason, there is a better feeling in scrap.

Pig Iron.—In a moderate way, there is some betterment in the new tonnage offered in pig iron, especially in foundry and pipe iron grades, but steel-making metal remains backward. The trading is being done largely for early shipment as neither buyers nor sellers apparently are eager to advance such transactions beyond the first quarter. In the minds of the former still exists the possibility of lower forward prices growing out of the reduced Lake Superior ore freights and the latter see no advantage in selling far ahead at today's prices. Prices while firm, show no buoyancy and makers who have been endeavoring to realize 25 cents advance in foundry iron find trouble in doing so except in isolated cases. Delaware river pipe makers are more active, taking prices from different makers and one of them has closed for several lots of northern iron, some of which were taken at below $14 delivered, which is lower than makers generally will accept. Another buyer of this class is inquiring for 2,000 tons of No. 3 and gray forge for February shipment. Other tentative business is in sight. Eastern consumers of rolling mill forge who were sounding the market have decided not to buy at present. One of these wanted 2,000 tons, and another 1,500 tons of this grade. Makers of standard mill forge are asking $14 furnace. There is a better movement of regular foundry grades, several 500 ton lots having been closed, with others pending. The range of this business is usually $15 to $15.25 delivered at Philadelphia and its vicinity. Malleable iron has sold recently in this territory from $15.40 to $15.50 delivered. A local buyer took 300 tons and has open about 500 tons of this grade for November delivery. Virginia furnaces have extended to the close of the year, the period for which they will accept $12.25 furnace for 2X, while for first quarter $12.75 is still nominally asked. Some basic is still being shopped about the market. A Central Pennsylvania maker which has been inquiring for 2,000 to 7,000 tons for first quarter, still has unfilled part of this business at least and another consumer in the same territory has been asking for 1,000 tons for November and December shipment. An inquiry for 300 tons from without this district appeared this week. Basic is nominally quoted at $14.50 delivered.

We quote for shipment over the balance of the year as follows:

No 1X foundry	$15.25 to 15.50
No. 2X foundry	15.00 to 15.25
No. 2 plain	14.50 to 14.75
Standard gray forge	14.25 to 14.50
Basic	14.50
No. 2X Virginia	15.05 to 15.30
No. 2 southern	14.00 to 14.50
Standard low phosphorus	20.00 to 20.50

Finished Material.—More cheerful sentiment seems to be gaining ground with the steel makers as it is becoming more apparent that the government attack upon the Steel Corporation is not likely to cause any prolonged disturbance and that the effect has been well discounted in the business world. Rather the formal instituting of the suit seems to have freed the market of one prominent factor of uncertainty which has overhung it so long and the result is not unfavorable.

In a few cases a slightly heavier tonnage has helped to induce the better tone, but as a rule, it has been the more promising outlook that has brought encouragement. Heavier railroad purchases seem assured and in equipment where prices have been cut sharply by builders, there are improved prospects. Freight cars which in ordinary times commanded $1,000 to $1,200 apiece have been quoted at $750, and this figure in cases could probably be shaded. The Pennsylvania railroad is figuring upon building 1,000 freight cars in its own shops which will require about 10,000 tons of steel.

The shading in finished lines has apparently not yet run its course. The recently reduced prices on wire and wire nails are subject to further concessions of about $1 a ton by independent makers at prices representing 1.55c Pittsburgh, on nails and 1.35c on plain wire. Steel bars while openly are quoted at 1.10c Pittsburgh, have been recently sold in southeastern territory on the equivalent of 1.07c Pittsburgh, the business going to makers with freight advantages. Small sales of open hearth billets at $19 Pittsburgh, and of Bessemer at $20 Pittsburgh, are noted. Plates and shapes are quoted from 1.15c to 1.20c Pittsburgh, or 1.30c to 1.35c Philadelphia, and some business at 1.40c is being done. Eastern bar iron mills are quoting 1.15c or 1.22c delivered on ordinary lots, but 1.20c has been done on carloads.

It is now officially announced that the Maryland Steel Co. has taken the fifth boat for the American-Hawaiian Steamship Co., which will fill its yard with large work for practically two years. This vessel will add about 3,000 tons of plates and 1,000 to 1,500 tons of shapes to the steel requirements for this work, making the total for the five boats about 15,000 to 17,000 tons of plates and 5,000 to 7,500 tons of shapes. The Clyde Steamship Co. it is now announced will probably place two large boats with eastern builders and this work is expected to go to the Cramp shipyard.

The award of the general contract for the Municipal convention hall, this city, is held up by injuction proceedings instituted by five tax payers and a hearing is scheduled for this week. Bids will be taken Nov. 14, on the Dock street pier, this city, the steel requirements for which it is estimated will run from 1,000 to 2,000 tons. The extensions to the Baldwin Locomotive Works, at Eddystone, Pa., are up for revised bids, Nov. 25. Revised bids went in this week on the Lapham apartment, this city, 800 tons. Of several apartments that have been up in Baltimore, one has gone concrete and the others, involving about 800 tons, are held up. It is announced that plans for the new stock exchange building, this city, are about ready for figures.

We quote delivered in Philadelphia and vicinity as follows:

Structural shapes, 1.30c to 1.35c; steel plates, 1.30c to 1.40c; steel bars, 1.25c to 1.30c; common bar iron, 1.20c to 1.25c; cut nails, $1.75 to $1.80; blue annealed sheets, No. 10 gage, 1.55c to 1.60c; 4 x 4-inch open-hearth rolling billets, $21.40 to $22.40; forging billets, $26.40 to $27.40. Extras shown under Pittsburg report.

Steel Rails.—The Norfolk & Western railroad has closed against its inquiry for 25,000 tons for 1912 delivery, but the distribution has not yet been announced. Some of the other eastern roads are showing tentative interest in rails, but the mills do not expect any heavy buying in the near future. The Pennsylvania railroad is not likely to issue its next year's budget for several months, and then it is likely to be rather smaller total than usual as this system will carry over into next year some of the tonnage ordered for this year's delivery. The Sparrows Point, Md., rail mill is still idle because of a lack of specifications.

Old Material. — Heavy orders of steel scrap in the Pittsburgh district, which have reached from 12,000 to 15,000 tons are expected to be parti-

ally filled by material from eastern district. The price paid, about $12.75 delivered, presents the opportunity for considerable material to be drawn at a profit from the low-priced eastern districts. The market in this district displays a little better tone, but this is not based on any substantial change as buying continues very sluggish. There is, however, more expectancy of better prices among holders of material and this fact is making trading more difficult. Wrought pipe and steel car axles are lower, about the best offers for heavy melting steel are $11.75 delivered, and interest in this grade is limited to one or two buyers. Eastern railroads will close this and next week on their monthly accumulation of scrap. There has been some buying of sheet bar crop ends for nail stock around $18 delivered.

We quote gross tons delivered in Eastern Pennsylvania and New Jersey consuming territory as follows:

Old iron rails	$15.50 to 16.60
Old steel rails (rerolling)	12.75 to 13.50
No. 1 heavy melting steel	11.50 to 12.25
Old car wheels	11.25 to 11.75
Old iron car axles	22.00 to 22.50
Old steel car axles	16.50 to 17.00
No. 1 R. R. wrought	13.75 to 14.25
Wrought pipe	10.75 to 11.25
Cast borings	7.50 to 8.00
Wrought turnings	8.25 to 8.75
Heavy cast scrap	12.50 to 12.75
Railroad malleable	11.25 to 11.75
Stove plate	9.25 to 9.75

Freight rates per ton on scrap from Philadelphia to principal eastern consuming points are: $0.60 to Ivy Rock, Pa.; $0.65 to Phoenixville, Pa.; $0.80 to Coatesville, Pa.; $0.85 to Bethlehem, Pa., Reading, Pa., and Roebling, N. J.; $1.10 to Pottsville, Pa., Lebanon, Pa., and Columbia, Pa.; $1.20 to Harrisburg and Steelton, Pa.; $1.40 to Milton, Pa.

NEW YORK

Buyers Holding Off On Forward Iron —Hell Gate Bridge Awarded.

Office of THE IRON TRADE REVIEW,
1115 West Street Bldg., Nov. 7.

Iron Ore.—Leading domestic shippers of iron ore in the east declare they will be unable to meet the ideas of eastern furnaces for 7-cent ore per unit of iron delivered. The better grades of these ores which are rich in iron, represent about the cheapest first-class material that is now being offered to eastern furnaces at their schedule of 7½ to 7¾ cents per unit, delivered, or about 5½ to 6 cents at the mines. Port Henry ores are selling at approximately 5 cents at the mines and about 8 cents per unit, delivered on the present schedule, or on about an equal basis with the most widely-used foreign ores except Swedish, which is higher in price.

Pig Iron.—The mood of buyers in this market has apparently changed considerably since the interjection in the situation of the factor of promised lower ore costs for the furnaces involved in the cancellation of the Great Northern ore lease and the reduction of freights from the Superior ranges. Prior to this unexpected development, there were many indications that buyers, satisfied that prices were at bottom levels, were about to actively begin covering against their first half requirements. Some business of this character had, in fact, already been put through. Now, however, buyers see a possibility of lower prices before July 1, through the revision of ore costs for some of the furnaces, particularly the lake plants and the placing of much of the business that was in sight will be deferred, pending further developments. Until the buyers know exactly what effect to expect in the way of ore and freight reductions, it is not likely that forward buying will be very extensive. The small amount of iron relatively carried by consumers, however, is forcing a steady buying of small lots for early shipment to fill pressing requirements. This is practically the only activity in the market and the combined volume of sales is small. The International Steam Pump Co. this week bought a considerable part of several small inquiries, aggregating about 2,000 tons, for eastern and Ohio plants. A New Jersey buyer took 500 tons of No. 2X for early shipment. A Massachusetts builder of textile machinery, inquiring for 5,000 tons of No. 2X for forward shipment, is offering prices about 50 cents below what the furnaces will accept and has not covered. A Providence, R. I., manufacturer of fire extinguishers, who originally inquired for 2,000 tons of No. 2X, and later revised this to 1,000 tons, has now decided not to buy under present conditions. Sales of about 1,000 tons of Buffalo iron in New England territory for early shipment around $13, furnace, for No. 2X, or $15.45, delivered, are noted. In some transactions, Buffalo makers are realizing considerably more than this price. Small sales were made this week for Brooklyn delivery at $15.65, delivered, or $13.20, Buffalo. Foundry iron prices show no change, ranging from $14.75 to $15.25, tidewater, for No. 2X. In this spread are included eastern Pennsylvania, Virginia and Buffalo brands. We quote for prompt and first quarter shipment as follows:

Northern foundry No. 1	$15.25 to 15.50
No. 2X foundry	14.75 to 15.25
No. 2 plain	14.50 to 14.75
No. 2 Virginia	15.05 to 15.30
No. 2 southern foundry	14.25 to 14.50
Malleable	15.00 to 15.25
Gray forge	14.25 to 14.50

Ferro-Alloys.—Another middle western buyer has entered the market for 400 to 500 tons of ferro-manganese for delivery throughout 1912, and from 1,200 to 1,500 tons are now pending. Forward trading is slow, as consumers are still unwilling to pay the $38.50, seaboard, price asked by English makers. That some forward material is available under this level, however, is shown by some recent sales at $38, seaboard, which is attributed to material in the hands of merchants. Some additional inquiry for 50 per cent ferro-silicon is out and about 150 tons are now pending. We quote 80 per cent ferro-manganese for prompt and forward shipment at $36.50 to $37.50, Baltimore, and 50 per cent ferro-silicon at from $58 to $60, Pittsburgh.

Cast Iron Pipe.—Some inquiry for spring shipment is being received from gas and water companies and the interest of these buyers so early is interpreted as an appreciation of the favorable opportunities for contracting at the present low prices. Little public work is offered. The 7,000 tons of 48-inch pipe and specials for the section of the Catskill aqueduct recently awarded F. V. Smith & Son, Inc., is expected to go to the Warren Foundry & Machine Co., Phillipsburg, N. J. Final action on the other large lot of pipe for similar construction, held by M. J. Drummond & Co., is still held up. We quote 6-inch pipe in carload lots at from $21 to $22, delivered, f. o. b. New York.

Finished Material.—Whatever effect the filing of the suit against the Steel Corporation may have had upon buyers, seems to have largely passed away and there is a feeling in some quarters that the government, by committing itself to a definite position in its legal opinion of the leading Steel interest will help to settle rather than to further disturb the former mixed sentiment. There are some reports of mild improvement in the trade, but generally conditions are unchanged. While there is considerable tonnage awaiting awards in this district, new structural business in Greater New York is coming out quite slowly. Some fabricating interests estimate that not over 10 per cent of the average tonnage of loft and apartment buildings in this city is now coming up for figures. The larger shops are well filled with business, but the order books of some of the smaller interests are getting quite lean. Some of the smaller shops in this territory are reported to have not more than six weeks' work ahead. Shape prices are openly quoted at 1.20c, Pittsburgh, or 1.36c, New York, but on large tonnages, 1.15c, Pittsburgh, is done and in exceptional cases, this figure has been shaded. Plates continue to be quoted 1.15c to 1.20c, Pittsburgh, and steel bars, 1.10c to 1.15c, Pittsburgh. The most important structural contract of the week involved 36,000 tons, awarded to the American Bridge Co. for the main structure and part of the approaches for the Hell Gate bridge, which

is to connect Long Island with the Bronx. The award was made by the New York Connecting railroad, which was organized by Pennsylvania and New Haven interests to carry out this project. About 30,000 tons aditional will be required for the remaining approaches and this contract will be awarded later.

The Pennsylvania Steel Co. is low and will get the award for 2,100 tons for a bridge for the Pennsylvania railroad over the Susquehanna river, near Williamsport, Pa. Very low prices were quoted by the bridge shops on this work. Bids are being taken this week on 2,000 tons for the Seneca building, Buffalo. About 25,000 tons of structural material and steel bars remain to be placed for three sections of the new Lexington avenue subway, upon which awards have been made to contractors, but have not yet been finally signed. These are sections No. 5, awarded to the Metropolitan Construction Co.; No. 15, held by the Hegerty-Drummond Co., Philadelphia, and No. 13, awarded the past week to the Bradley Construction Co. This latter section will require about 9,500 tons of structural material and steel bars. The factory building for the Manhattan Soap Co., this city, 1,200 tons, has been indefinitely postponed. Bids went in this week on 1,200 tons for the Cooper Union School, Third avenue, between Sixth and Seventh streets. There have been no decisions on other work on which bids have been recently taken. The Madison Square Garden loft, 22,000 tons, is still before the structural trade, but action on the general contract is promised shortly.

Car builders see some cause for encouragement in the reviving interest of railroads in equipment, which has been reflected by a freer placing of orders recently. The latest orders to be given out include 600 steel gondolas to the Pressed Steel Car Co., for the Southern railroad; 2,000 steel underframe box cars for the New York Central lines, to the American Car & Foundry Co., and 2,000 steel hopper cars for the Chesapeake & Ohio railroad, to the Standard Steel Car Co. Altogether, the New York Central lines have recently bought 7,000 steel underframe box cars, of which 3,000, for the Pittsburgh & Lake Erie railroad, went to the Pressed Steel Car Co., and 4,000 to the American Car & Foundry Co., 2,000 of which were reported about two weeks ago. Of the American Car & Foundry Co. cars, 2,000 will be built at the Berwick, Pa., and 2,000 at the Detroit plants. We quote, delivered at New York tidewater, as follows:

Plain structural shapes, 1.31c to 1.41c; tank plates, 1.31c to 1.41c; steel bars, 1.26c to 1.31c; common iron bars, 1.25c; plates and shapes from store, 1.70c to 1.80c. Extras shown under Pittsburgh report.

Old Material.—Small orders still characterize the market, and individual sales rarely exceed 500 tons. Buyers are making low offers, but there appears to be plenty of scrap to be had at such prices. In heavy steel, eastern Pennsylvania mills are not offering over $11.75, delivered, for yard material, and have done $11.50. Railroad steel is higher, but one eastern mill seems to be actively interested in steel scrap. Railroad wrought is very dull. Small lots of wrought pipe have sold at $11.20, delivered. Recent sales of heavy cast in New Jersey territory at $12.00, delivered, are noted. We quote, gross tons, prices New York dealers will pay at tidewater, with the exception of cast scrap, which has a local demand, as follows:

Old car wheels	$ 9.75 to 10.00
Old iron axles	18.00 to 18.50
Old steel shafting	13.50 to 14.00
No. 1 heavy melting steel	9.50 to 10.00
No. 1 R. R. wrought	11.50 to 12.00
Iron track scrap	11.00 to 11.50
Wrought pipe	9.00 to 9.25
Cast borings	5.75 to 6.25
Heavy machinery cast	11.50 to 12.00
Railroad malleable	9.00 to 9.50
Stove plate	8.00 to 8.25
Grate bars	6.25 to 6.50

Freight rates on scrap per ton to Steelton, Pa., Columbia, Pa., Pottsville, Pa., and Harrisburg, Pa., are $1.50 from Jersey City and $2.00 from New York; to Coatesville, Pa., Ivy Rock, Pa., Phoenixville, Pa., and Reading, Pa., $1.50 from Jersey City and $1.80 from New York; to Bethlehem, Pa., $1.10 from Jersey City and $1.60 from New York; to Roebling, N. J., $1.00 from Jersey City and $1.50 from New York; to Milton, Pa., $1.60 from Jersey City, and $2.00 from New York.

Two Fair Pig Iron Inquiries Still Open.—Madison Mill Resumes.

Nov. 6.

Pig Iron.—Buying has been from hand to mouth the last few days, and the two inquiries—one for 2,000 tons of southern and northern, and one for 1,000 tons of car wheel iron—reported last week, are still in the market. Prices of southern iron, delivered, to which the Birmingham freight of $3.75 has been added, follow:

Southern No. 1	$14.25 to 14.75
Southern No. 2	13.75 to 14.25
Southern No. 3	13.50 to 14.00
Southern No. 4	13.25 to 13.75

Coke.—Considerable price figuring is going on, but business in coke is dull. Quotations remain as follows:

We quote 72-hour Connellsville foundry grades, $1.90 to $2.40 for whole of 1911; 72-hour foundry, $1.90 to $2.15 on tracks and for immediate delivery; 48-hour Connellsville furnace, $1.40 to $1.50; best 72-hour Virginia foundry, $2 to $2.25; 48-hour Virginia furnace, $1.60 to $1.85. The freight to East St. Louis and St. Louis is $2.80, and $2.70 from the Virginia fields when shipment is destined beyond St. Louis.

Finished Material.—The indications of activity in railroad buying in the east have not manifested themselves to any great extent here, yet there is a feeling that some improvement is in sight. The American Car & Foundry Co. opened its Madison, Ill., plant today, following an advertisement of several days standing for 2,500 workmen. The company recently received orders from the east for 4,500 cars, 2,000 of which are to be refrigerator cars, and is expecting additional ones. The financing of the proposed 22-story Barr building, which if built will cover an entire city block in St. Louis, is now said to be in the hands of a group of capitalists in a trust company, and it is believed that the building will become a reality.

Old Material.—No transactions of consequence were reported last week and business is extremely dull. Prices are unchanged as follows:

GROSS TONS.

Old car wheels	$12.50 to 13.00
Old iron rails	13.00 to 13.50
Re-rolling rails (5 feet and over)	11.75 to 12.25
Old steel rails (3 feet and under)	10.25 to 10.75
Light section relayers (45 lb. and under, subject to inspec..	19.00 to 21.00
Re-laying rails, subject to inspec.	23.00 to 23.50
Frogs, switches and guards	10.00 to 10.50
Heavy melting steel	10.00 to 10.50
Shoveling steel	9.50 to 10.00

NET TONS.

No. 1 railroad wrought	$10.00 to 10.25
No. 2 railroad wrought	9.00 to 9.25
Arch bars and transoms	13.00 to 13.50
Knuckles, couplers and springs.	9.00 to 9.50
Shafting	13.00 to 13.50
Iron car axles	17.00 to 17.50
Steel car axles	15.00 to 16.00
Locomotive tires	14.00 to 14.50
No. 1 country wrought	8.50 to 8.75
Pipe and flues	7.00 to 7.25
Tank iron and cut boilers	6.75 to 7.00
No. 1 cut busheling	8.00 to 8.50
No. 2 cut busheling	5.75 to 6.00
Cast and mixed borings	5.00 to 5.25
Machine shop turnings	6.00 to 6.50
Railroad malleable	9.00 to 9.50
Agricultural, malleable	8.00 to 8.50
Stove plates	8.50 to 9.00
Angle splice bars (iron)	10.00 to 10.50
Angle splice bars (steel)	9.00 to 9.50

Pig Iron Purchased in Fair Volume For Immediate Shipment.

Birmingham, Ala., Nov. 6.

Pig Iron.—A fair tonnage of pig iron was purchased during the week. The iron is largely for early shipment and was placed at prices that are not highly renumerative. Buyers are not inclined to cover their first half requirements and local producers are not anxious to take on tonnage for the first six months of next year at the present schedule. The $10 basis for No. 2 still remains in effect. Quotations, per ton of 2,240

pounds, f. o. b. cars, Birmingham district, follow:

No. 1 foundry	$10.50
No. 1 soft	10.50 to 10.75
No. 2 foundry	10.00
No. 2 soft	10.00 to 10.25
No. 3 foundry	9.50 to 9.75
No. 4 foundry	9.25 to 9.50
Gray forge and mottled	9.00 to 9.25

Cast Iron Pipe.—This has been a quiet week with the producers of cast iron pipe, and they have concentrated their efforts on shipments of their product on existing contracts. It is not believed that the limited tonnage placed during the past week will materially affect prices. It seems that the most of the pipe shops are buying iron for immediate consumption only, and are taking advantage of every concession that is made on pig iron. Prices unchanged as follows:

Four to 6-inch, $22.50 to $23; 8 to 12-inch, $21.50 to $22; over 12 inch, average $21. This schedule covers water mains only, and gas pipe takes its usual differential of $1 per ton higher.

Old Material.—The scrap iron market in the Birmingham district continues quiet. There is so little doing that dealers seem very much discouraged. They report no change in prices, which remain as follows, f. o. b. cars per gross ton, their yards, this district:

Old iron axles (light	$12.50 to 12.75
Old steel axles	11.00 to 11.50
Old iron rails	11.50 to 12.00
No. 1 railroad wrought	10.50 to 10.75
No. 2 railroad wrought	8.75 to 9.00
No. 1 country wrought	6.75 to 7.00
No. 2 country wrought	6.00 to 6.25
No. 1 machinery, cast	8.50 to 8.75
No. 1 steel, scrap	8.25 to 8.50
Tram car wheels	7.50 to 8.00
Standard car wheels	9.25 to 9.75
Light cast and stove plates	6.00 to 6.25

BRITISH IRON MARKET

Pig Iron Active, But Prices Have Not Revived.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Oct. 28.

Pig Iron.—Although the pig iron market has generally a healthy tone, prices still fail to reflect the heavy demand and consumption. At Cleveland this week, there has been a further decline in stocks, making the total reduction 14,800 tons this month, and there is every prospect of further decreases, yet prices continue about 46s 3d ($11.32) to 46s 6d ($11.38). Although the autumn is far advanced, shipments are increasing. It may be that speculative business in warrants is restricted by the comparatively high loan rates charged by bankers. In Scotland there is a heavy consumption of foundry and malleable iron. In the Birmingham district, there is increasing firmness, while some smelters claim to have obtained advances, but it is still possible to do business on the basis of quotations made a week ago. The amount in store at Middlesbrough is now 575,000 tons. In regard to hematite iron, although there is an enormous consumption, prices cannot be moved upwards, and east coast mixed numbers continue at 60s 6d ($14.80), for early delivery, makers as well as holders of second being quite prepared to accept this figure. There is a strong belief that any marked upward movement will bring a sudden and rapid increase of business.

Finished Iron and Steel.—There is a big volume of trade, and a confident optimism in all branches of finished iron and steel unknown for years past. It is agreed that in the heavy departments of Sheffield, nothing like the present output has ever been experienced. The real improvement lately is in the railway work. Railways have been very loth to place orders, but they have had to give way at last. And now they are tumbling over each other in the placing of contracts, and in urging delivery. A feature of the latest order which has aroused no little comment is that the specification requires the underframes to be made of iron instead of steel.

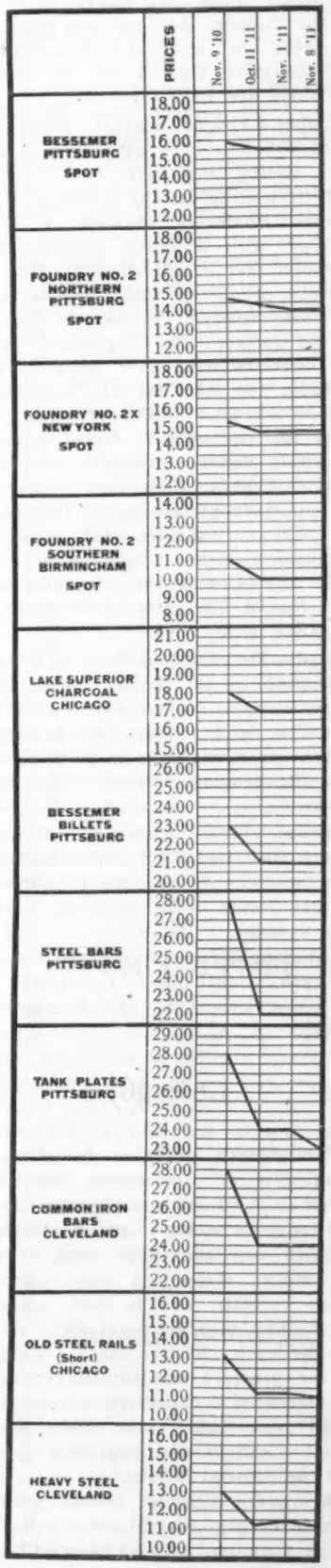
METAL MARKETS

New York

Nov. 6.

Tin.—The London market declined rapidly following the publication of the October statistics. At the close of business, Friday, last week, the metal was down about £6 to £186 5s, abroad, and over 1c to 40.90c in the local market. Domestic consumers were active buyers on the decline. The combined statistics showed that for the ten months of 1911, consumption increased and production decreased to the extent that the total visible supply decreased 3,033 tons, which makes the total as of Oct. 31, 1911, 14,161 tons. The metal is scarce for nearby deliveries in the domestic market, notwithstanding that 1,769 tons were held in warehouse, and on dock and landing on Nov. 1. Most of the recent buying, however, was done for late November and December delivery, and a premium is not considered likely to develop. The foreign syndicate changed the course of the market over the week end

PRICE CHART



and advanced prices at the opening of business today £3 15s. While the domestic trade did not respond with a renewal of last week's buying, quotations in the local market reflected the London advance and closed at 41.40c for spot and November. Arrivals since Nov. 1 are 145 tons and there are 1,959 tons afloat.

Copper.—Firmer market tone is noted although sales were only moderate during the past week. The trade is waiting for the report of the Copper Producers' Association for October with a fairly general expectation that it will show a balance between production and deliveries of at least 10,000,000 pounds in favor of the former. The important selling interests have held prices firm at 12.50c for lake and 12.37½c, cash New York, and 12.50c, delivered 30 days, for electrolytic. Some copper in second hands is available at concessions, but it does not represent an important percentage of the supply. Copper warrants were stronger in London today. Spot closed at £55 18s 9d, and three months at £56 13s 9d. Exports since Nov. 1 are 4,813 tons.

Lead.—The local market has not responded to the higher quotations in the west, where it is said lead sold at 4.17½c in St. Louis. Independent sellers are asking 4.30c in New York, and the leading interest 4.25c for shipment.

Spelter.—The market continues strong with metal for early delivery very scarce. Prime western cannot be had under 6.40c in New York. The demand is fair.

Antimony.—The market is very dull, and prices unchanged. Cookson's is 8c, Hallett's is 7.65c, and Hungarian is 6.95c.

Chicago

Nov. 7.

New Metals.—There have been practically no interesting developments in the local metal market during the past week. Copper remains sluggish and somewhat weak. Tin has moved through a very narrow range recently and is now quoted 41¾c Chicago, a net loss of ¼c during the week. Spelter has succumbed to the pressure on the market and has recently declined $1 a ton, the local price being now 6.15c,. Chicago. Lead is unchanged in price and the demand is fair.

We quote, dealers' selling prices, f. o. b. Chicago, as follows:

Lake copper, carload lots, 12½c; casting, 12¼c; smaller lots, ¼c to ⅜c higher. Spelter, car lots, 6.15c; lead, desilverized, 4.20c in 50-ton lots; corroding, 25c per 100 pounds higher; sheet zinc, $8 list, f. o. b. La Salle, in car lots of 600-pound casks; pig tin, 41¾c. Cookson's antimony, 9¼c; other grades, 8¼c to 8¾c.

Old Metals.—There has been slight buying recently on the part of brass foundries, and automobile builders are entering the market rather freely for old aluminum. In general the list is quiet and price changes have been confined to practically negligable quantities.

We quote the market, f. o. b. Chicago, as follows:

Copper wire, crucible shapes, 11c; copper bottoms, 9¾c; heavy cut crucible copper, 11½c; heavy red brass, 10c; heavy yellow brass, 8½c; No. 1 red brass borings, 9½c; No. 1 yellow brass borings, 7½c; brass clippings, 8c; lead pipe, 4c; zinc scrap, 4.60c; scrap aluminum, 12c; tea lead, 3¾c; No. 1 pewter, 28c; block tin pipe, 37c; tin foil, 35c; linotype dross, 3¼c; electrotype dross, 3c; stereotype plates, 4½c; stereotype dross, 3¼c; prime slab zinc dross, $88 to $90 a ton.

St. Louis

Nov. 6.

Lead and Zinc.—The top price for zinc blende in the Missouri-Kansas-Oklahoma district last week was in excess of $51 a ton on a contract base of $46.80, figured on the previous week's average for spelter at East St. Louis, which was 6.1425c. This price was nearly $2 stronger than the highest price reported in the open market, where the prices ranged from $40 to $45 a ton. Calamine continued to remain firm, choice qualities bringing $32 a ton, with 40 per cent grades selling at $23 to $25 a ton. These prices were sufficient to warrant a heavy production in spite of cold weather. Lead ore remained unchanged at $55 to $57 a ton.

Building New Plant

The Buckeye Twist Drill Co., Alliance, O., which was recently incorporated to take over the Michigan Twist Drill Co., Detroit, is erecting a new factory, 60 x 175 feet, at Alliance. It will be completed about Dec. 1, and at that time the Michigan Twist Drill Co. will be dissolved and its plant removed to Alliance. E. D. Rogers is president of both companies.

WANTS STEEL RAILS

Canadian Pacific Railway is in Market for 50,000 tons.

Toronto, Can., Nov. 6.—It is understood that the Canadian Pacific Railway is in the market for 50,000 tons of steel rails. The western lines of the company are being rapidly pushed to completion, about four miles of steel (or two of track) being laid every day.

Progress reports of the district engineers engaged on the eastern division of the Grand Trunk Pacific railway, show that about two-thirds of the work has been completed. Out of the 1,845 miles between Moncton, N. B., and Winnipeg, 1,275 miles of road bed are practically finished and the rails laid. The middle section, comprising nearly 600 miles, which presents considerable difficulties, will require at least a couple more years to complete, and it is hardly expected that the whole line will be open for traffic before the spring or summer of 1914. Approximately $25,000,000 have been spent on construction work during the past twelve months.

The investigations into the methods of the United Shoe Machinery Co. of Canada, a branch of the American company of the same name, to inquire into the complaint that the company was a combination in restraint of trade, has been suspended by the new administration at Ottawa. Yesterday Judge Laurendeau, chairman of the investigating commission, was officially notified to stay proceedings, pending the decision of Hon. C. J. Doherty, minister of justice.

Dredge Orders Booked

The Marion-Osgood Co., Marion, O., has booked orders for six yard steam shovels, for use on the New York aqueduct, at Valhalla, N. Y., and a four-yard dipper dredge, with independent spud engines. It also has an order for a complete dipper-dredge for the Empire Engineering Corporation, for use on the New York state barge canal, section 64, to have steel spuds and a 70-foot boom.

The Great Northern Mfg. Co., Rochester, N. Y., the incorporation of which was recently noted, advises that it will manufacture a moving picture machine attachment for which numerous orders have already been received. A plant will probably be erected next spring.

STACKS BOUGHT

By Woodward Iron Co. and Other Birmingham Property.

The property of the Birmingham Coal & Iron Co., Birmingham, Ala., with two blast furnaces located at Vanderbilt, Ala., has been purchased by the Woodward Iron Co., also of Birmingham. The transaction involves approximately 40,000 acres of coking coal land, 2,500 acres of red and brown ore land and 211 bee-hive ovens in addition to the furnace plant. This will give the Woodward company a total of five modern blast furnaces.

The Vanderbilt furnaces were blown in on Aug. 23, 1890. They were remodeled in 1897 and rebuilt in 1899 and 1901. They were placed in the bankruptcy court on Feb. 5, 1909, and discharged from the receiver's hands on Jan. 1, 1910. Their total output is 130,000 tons.

Foundry Exhibit

At the annual meeting of the Foundry & Machine Exhibition Co., held in Pittsburgh, Monday, Oct. 30, the recommendation of the directors, made at the Buffalo meeting, that a 20 per cent dividend be paid exhibitors at the Pittsburgh convention, was endorsed. This dividend will be paid to all exhibitors who participated in two consecutive shows and the dividend will be held in reserve for those who exhibited for the first time at the last convention, but will be paid to them in 1912 if they exhibit at Buffalo.

At a meeting of the directors held in Buffalo, Sept. 15, for the purpose of completing plans for the 1912 exhibit, it developed that the Sixty-ninth Arsenal, which has been offered for exhibition purposes, would not be available on account of the contemplated alterations which will not be finished in sufficient time for the show. Efforts were then made to obtain the Seventy-fourth armory and members of the executive committee have been instructed to go to Buffalo to ascertain whether the facilities of this structure are ample for the 1912 show.

New York Copper Exports

Exports of copper for the week ending Nov. 2, were 5,453 tons, a decrease of 3,087 tons; month to Nov. 2, 2,363 tons, a decrease of 911 tons; from Jan. 1, 274,188 tons, an increase of 31,046 tons.

Works Purchase Denied.—The report that the Pennsylvania Railroad Co. has opened negotiations for the purchase of the Northside, Pittsburgh, works of the American Locomotive Co., is officially denied by representatives of the latter company. The plant has been idle for some time.

CRANES AWARDED

By Youngstown Sheet & Tube Co., and Pittsburgh Crucible Steel Co.

The Youngstown Sheet & Tube Co., Youngstown, O., has awarded the following contracts for cranes for its new open-hearth plant: Two 165-ton pouring cranes, one 100-ton charging crane, two 6-ton soaking-pit cranes and two horizontal charging machines, to the Morgan Engineering Co., of Alliance, O.; one 60-ton four-motor crane, one 40-ton four-motor crane, one 25-ton double trolley special crane, one 15-ton crane, one 10-ton double drum, one 10-ton double trolley and one 10-ton standard crane, to the Alliance Machine Co., Alliance, O.; six jib cranes, one 7½-horsepower and five ½-horsepower capacity, six tons, to the Whiting Foundry Equipment Co.

The Pittsburgh Crucible Steel Co. has awarded the following contracts for cranes in connection with the building of the new open-hearth steel plant at Midland, Pa.: Two ladle cranes of 165 tons capacity; one ladle crane of 100 tons capacity; two open-hearth floor chargers, two soaking pit cranes and an electric stripper to the Morgan Engineering Co.; seven standard overhead traveling cranes to the Alliance Machine Co., and six spout cranes to the Whiting Foundry Equipment Co.

Breitung Mines Reduce Activities

Marquette, Mich., Nov. 6.—The Breitung interests are scaling down operations at their Negaunee mines. Upward of 200 men have been released at the Mary Charlotte. This curtailment has come unexpectedly, as up to very recently the company had constantly been adding to the working forces at the Mary Charlotte, Breitung Hematite and Milwaukee-Davis properties. Production and development have been pushed energetically, heavy shipments have been made and some prospecting has been done. The mines will continue on the active list during the winter, but they will not be operated as vigorously as heretofore, at least until orders are booked for next season's delivery.

TO BE ABOLISHED

Is Time-Honored Identity of Heckscher Furnace Co. by Merger.

The special stockholders' meetings of the Alan Wood Iron & Steel Co. and of the Richard Heckscher & Sons Co., which were held Nov. 6, passed upon the previous act of the directors of these companies in merging their properties under one corporate title. These companies were originally merged more than a year ago, but have been operated as separate companies since, the Alan Wood Iron & Steel Co. conducting its original plants of the steel works and finishing mills at Ivy Rock, Pa., and the Richard Heckscher & Sons Co. continuing to operate its blast furnace plant of two stacks at Swedeland, Pa. The directors of the two companies have now voted to combine under the name of the Alan Wood Iron & Steel Co., abolishing the identity of the Richard Heckscher & Sons Co. and the stockholders have passed upon this action at the special meetings. The Swedeland furnaces will become the blast furnace department of the Alan Wood Iron & Steel Co. Recently a hot metal bridge was constructed across the Schuylkill river, connecting the blast furnace plant with the steel works. Before its absorption by the Alan Wood company, the Richard Heckscher & Sons Co. was one of the best known producers of merchant pig iron in the east, having operated its furnaces for many years.

To Sell Old Plant

Upon the order of the American Radiator Co. the old A. A. Griffing Iron Works, at Woodward street and Bramhall avenue, Jersey City, will be sold at public auction, Nov. 22. The plant consists of seven acres of land, upon which are located a number of one and two-story brick and frame buildings. The property is adapted for automobile, machine or manufacturing plant of any kind.

Enlarge Foundry

The Chicago Iron Foundry Co. of Illinois has purchased a lot 121 x 125 feet in size at the southeast corner of Austin and Claremont avenues, Chicago. It is improved with a two-story building which the buyer will enlarge. No details regarding the new plans of the Chicago Iron Foundry Co. have yet been made public.

DECREASE SHOWN

In Lake Ore Shipments in October—Port Receipts.

Ore shipments during October were 4,769,965 gross tons as against 4,877,-441 gross tons for the corresponding month last year, a decrease of 107,-476 tons. The movement to Nov. 1 is 29,607,102 gross tons as against 39,-978,308 tons to Nov. 1, 1910, a decrease of 10,371,206 tons. During November last year 2,641,886 tons were moved and if the fleet moves an equivalent amount this year the total movement for the year will be 32,248,-988 tons. It is not expected, however, that the November movement this year will equal that of last year. To begin with all the shippers are through with outside tonnage. The Pittsburgh Steamship Co. has retired its barges and it expects to ship its last cargo of ore on Nov. 18. The clean-up will be early and it is doubtful if over 2,-000,000 tons will be moved during the month. The total shipments for the season will therefore be somewhat between 31,000,000 and 32,000,000 tons. The summary follows:

Port.	Oct. 1910.	Oct. 1911.
Escanaba	639,444	677,807
Marquette	309,283	387,436
Ashland	380,839	381,595
Superior	1,317,902	1,368,893
Duluth	1,223,710	956,312
Two Harbors	1,006,263	997,892
Total	4,877,441	4,769,965
1911 decrease		107,476

Port.	To Nov. 1, 1910.	To Nov. 1, 1911.
Escanaba	4,507,517	3,764,654
Marquette	2,998,503	1,956,147
Ashland	3,817,669	2,260,381
Superior	7,802,254	9,315,002
Duluth	13,089,262	6,457,706
Two Harbors	7,763,103	5,853,212
Total	39,978,308	29,607,102
1911 decrease		10,371,206

Receipts by Ports.

Out of a total movement of 4,769,-965 tons of ore during October, 4,-009,062 tons came to Lake Erie ports, distributed as follows:

Port.	Tons.
Buffalo	325,388
Erie	45,702
Conneaut	1,169,759
Ashtabula	1,069,315
Fairport	48,444
Cleveland	685,549
Lorain	484,187
Huron	28,648
Sandusky	.....
Toledo	104,275
Detroit	47,795
Total	4,009,062

That British Rebate.—In the finished steel trade, there is some restriction of business, owing to the uncertainty as to the promised rebate of 5 shillings which has been offered by British steel makers to their home customers, says our Birmingham, Eng., correspondent. It is commonly reported that this will come into operation at the beginning of November, but customers are not at all enthusiastic about it, as it does violence to their prejudice for an open market. They profess to detect in the move an intention to "wring their withers" when the foreign producer has been effectually excluded. On the whole, British prices maintain surprising steadiness, in view of the great volume of trade, and there are no material increases in quotations.

New Ore Dock Goes Into Commission

Ishpeming, Mich., Nov. 7.—While not wholly completed the new No. 1 ore dock of the Steel Corporation's Duluth & Iron Range railroad at Two Harbors has gone into commission. Built of steel and concrete and representing an expenditure of not far from $1,500,000, it is excelled in capacity, among structures of its kind, only by the Great Northern's newest pier at Superior. It replaces the old No. 1 wooden dock, which was erected in 1883, and was the first to be built at the head of the lakes. The new dock's total length is 1,935 feet, its height is 74 feet and its deck width 51 feet, 8 inches. It contains 208 pockets, each of a capacity of 350 tons, giving storage room for an aggregate of 72,800 tons. The pier is equipped with the most modern apparatus, among which are electric hoisting devices. Construction work was started Jan. 1, last. It is expected the dock will be entirely completed by the end of December.

Many New Industries Are Located

A notable statement in the report of Daniel Willard, president of the Baltimore & Ohio Railroad Co. for the fiscal year ended June 30, 1911, is that 224 new industries, manufacturing and commercial, were located on or immediately adjacent to the lines during the year, from which it is estimated that the company will ultimately derive freight revenue of over $1,000,000 per annum. Side tracks have been constructed to 135 of these plants. During the year the company purchased 187 locomotives, 8,268 freight cars, 26 passenger cars and other equipment at a cost of $15,439,-203. The gross earnings for the year were $89,968,130, a decrease of $195,-270. Net earnings were $25,378,936, a decrease of $2,188,514, while the operating expenses increased $1,432,266.

EQUIPMENT LET

By Cleveland Board of Education For New West Technical High School.

The board of education of Cleveland on Nov. 6 awarded further contracts for equipment for the new West Technical high school, the awards including elevators and most of the items for the foundry and woodworking department and those for the machine shop that were rejected at the last meeting. The list still pending includes an automatic screw machine. The successful bidders were as follows:

FOUNDRY.

Equipment complete to the W. M. Pattison Supply Co., for $1,122.

MACHINE SHOP.

Motor driven lathes: One Hamilton 14-inch by 8-foot, with constant speed motor, to Lake Erie Nail & Supply Co., $608; one Bradford 14-inch by 6-foot, with variable speed motor, to Bradford Machine Tool Co., $695.

Cone driven lathes: Four Prentice 14-inch by 5-foot, to Joseph T. Ryerson & Sons Co., $379 each; four LeBlond 14-inch by 5-foot, to W. M. Pattison Supply Co., $380 each; four Reed 14-inch by 5-foot, to Manning, Maxwell & Moore, $389.50 each; two Flather 14-inch by 5-foot, to Hill, Clark & Co., $384 each; two Greaves & Klusman 14-inch by 5-foot, to Motch & Merryweather, $342 each; one Pratt & Whitney, to Niles Tool Works, $468; one Whitcomb-Blaisdell, with double back gears, to Hill, Clark & Co., $390.

Shapers: Four Gould & Eberhardt, 14-inch double geared, to Motch & Merryweather, $283 each.

Milling machines: One Grand Rapids No. 2 plain, to Lake Erie Nail & Supply Co., $640; one Cincinnati No. 1½ plain, $547, one 10-inch universal dividing head for same, $157, and one universal milling attachment for same, $130, to Motch & Merryweather; one Kearney & Treaker No. 1A plain, $750, and one 12-inch universal dividing head for same, $140, to Hill, Clark & Co.

WOODWORKING DEPARTMENT.

Band saws: One 36-inch American, to Strong, Carlisle & Hammond, $148; one 30-inch crescent belt driven, to Motch & Merryweather, $74; two 30-inch motor driven, to J. A. Fay & Egan, $182 each.

Lathes: One pattern makers' under-drive, to J. A. Fay & Egan Co., $234; seven Oliver No. 53A motor head speed, to Oliver Machinery Co., $159.50 each; six 12-inch Fay & Scott motor head speed, to Strong, Carlisle & Hammond, $142.98; five No. 54C Oliver speed, to Oliver Machinery Co., each $41.50.

Jointer: One 12-inch American, to Strong, Carlisle & Hammond, $166.25. Saw bench: One universal American, to Strong, Carlisle & Hammond, $350. Surfacer: One 24-inch, to Strong, Carlisle & Hammond, $653. Cut-off saw: One Hodges, to Strong, Carlisle & Hammond, $61. Combination band saw filing, setting and jointing machine: One Foley, to George Neil, $44. Oil stone grinders: Three Mummert, Wolf & Dixon No. 479B, to J. A. Fay & Egan Co., for $125 each; one Oliver, to George Neil, $104.70. Wood trimmers: Four Oliver No. 1B, to Oliver Machinery Co., $41.50 each.

ELEVATORS.

One car and enclosures, to Cleveland Art Metal Co., $1,140; one drum type elevator, Otis Elevator Co., $3,390.

LOCKERS.

Steel lockers, 834, to Van Dorn Iron Works Co., $3,727.98.

PULLEYS AND CLUTCHES.

Oneida pulleys, to Cleveland Tool & Supply Co., $106; positive clutches, to Strong, Carlisle & Hammond, $163.50.

October's Production Exceeded September's

Net Loss of Two Stacks from Active List—Daily Average Higher in October—Merchant Gain Larger

The production of coke and anthracite pig iron for October was 2,092,061 tons, compared with 1,973,918 tons for September, a gain for October of 118,143 tons. It should be remembered, however, that October had one more working day than September. The daily average production in October was 67,486 tons, compared with 65,797 tons in September, a gain for the daily average of October of 1,689 tons.

MONTHLY PRODUCTION.

	1911.	1910.	1909.
January	1,766,658	2,599,995	1,788,164
February	1,781,285	2,428,937	1,682,470
March	2,165,764	2,583,736	1,922,644
April	2,044,904	2,477,700	1,730,608
May	1,871,388	2,374,802	1,866,757
June	1,773,282	2,282,279	1,930,029
July	1,773,583	2,158,124	2,088,620
August	1,921,832	2,103,791	2,232,642
September	1,973,918	2,048,461	2,375,589
October	2,092,061	2,086,205	2,604,037
November		1,910,385	2,532,740
December		1,779,899	2,682,702
Total	19,164,675	26,840,314	25,337,002

The output of pig iron by the merchant furnaces in October aggregated 532,270 tons, compared with 475,616 tons in September, a gain for October of 56,654 tons. The non-merchant or steel plant furnaces produced in October 1,536,836 tons, compared with 1,476,879 tons in September, a gain in October of 59,957 tons. Thus the merchant furnaces made proportionately a larger increased output in October than did the steel plant furnaces.

October shows a reduction of two from the number of stacks active on the last day of September. The total number of stacks active on the last day of September was 216, whereas the total number of stacks active on the last day of October was 214. During the month of October, four merchant stacks were relighted and five were blown out, making a net of one blown out. In the non-merchant or steel plant, three stacks were blown in and four blown out, making a net of one out; or a net total of two stacks blown out during the month.

AVERAGE DAILY PRODUCTION.

	1911.	1910.
January	56,989	83,871
February	63,617	86,747
March	69,863	83,580
April	68,163	82,590
May	60,367	76,607
June	59,109	76,276
July	57,294	69,617
August	61,995	67,864
September	65,797	68,282
October	67,486	67,297
November	.....	63,679
December	.....	57,192

The production of spiegel in both months was within 12 tons of being identical, 10,878 tons in October and 10,866 tons in September. The output of ferro in October was 12,077 tons, compared with 10,557 tons in September, a net gain in October of 1,520 tons.

The Colorado Fuel & Iron Co. blew in its "B" stack on Oct. 5. Four of the group are operating.

OCTOBER PIG IRON.

States.	No. of stacks.	No. in blast last day of month.		Total tonnage made.		——Tota's.——	
		Oct.	Sept.	Merchant	Non-Merchant.	Oct.	Sept.
Pennsylvania	158	86	90	140,881	745,761	886,642	817,117
Ohio	72	42	41	112,586	345,981	458,567	422,892
Alabama	45	19	19	115,378	33,854	149,232	162,428
Virginia	24	7	8	23,745	.....	23,745	20,600
New York	27	13	12	56,190	63,843	120,033	112,897
New Jersey	7	0	0	.....	.....	.....	.....
Illinois	24	17	17	20,157	183,844	204,001	201,028
Colorado	6	4	3				
Indiana	8	6	6				
Maryland	4	3	3				
Wisconsin	6	2	2	13,112	136,016	149,128	144,894
Kentucky	7	2	2				
West Virginia	4	3	3				
Tennessee	18	7	7				
Washington	1	0	0	35,783	27,537	63,320	56,644
Georgia	2	0	0				
Texas	3	0	0				
Minnesota	1	1	1				
Michigan	3	2	2				
Missouri	1	0	0	14,438	.....	14,438	14,085
Spiegel—All states						10,878	10,866
Ferro—All states..						12,077	10,557
Totals	421	214	216	532,270	1,536,836	2,092,061	1,973,918

Blast Furnace Notes

The Maryland Steel Co. banked its "D" stack on Oct. 13.

No. 2 furnace of the Lackawanna Steel Co., at Buffalo, was blown in on Oct. 8.

The Tonawanda Iron & Steel Co., North Tonawanda, N. Y., blew out "B" furnace on Oct. 9.

The Wickwire Steel Co. turned the blast on its Harriet X stack, Oct. 24.

Blanche furnace of the Marting Iron & Steel Co., Ironton, O., went in operation on Oct. 9.

The Wellston Steel & Iron Co., Wellston, O., expects to blow in one of its idle stacks in November. None are being operated at present.

The Pennsylvania Steel Co. took the blast off its No. 4 furnace at Steelton, Pa., on Oct. 20, to make repairs.

Robesonia Iron Co., Robesonia, Pa., blew in its stack on Oct. 12.

The Oriskany Ore & Iron Co. has ceased operating the Buena Vista stack of the Allegheny Ore & Iron Co., at Iron Gate, Va. The stack was blown out Oct. 26.

Corrigan, McKinney & Co. blew out their Scottdale, Pa., furnace on Oct. 15.

One Edgar Thomson stack out, one Carrie out and one Ohio out, were the changes in the blast furnace operations of the Carnegie Steel Co. for October.

No. 2 stack of the Cleveland Furnace Co. went in on Oct. 5, while No. 1 went out Oct. 13.

To Build a Foundry

Plans are being prepared for the erection of a foundry plant at Oneida, N. Y., for the Oneida Foundry Co., which is to be a branch plant of the National Foundry Mfg. & Supply Co., Williamsport, Pa. It will soon be in the market for a cupola, fan, elevator and casting machinery.

The Laughlin - Barney Machinery Co., Union Bank building, Pittsburgh, the incorporation of which was recently noted, advises that it will have exclusive representation in the Pittsburgh district for a large line of machine tools manufactured by six leading companies.

LARGE RAIL ORDERS

Placed With the Mills for 1912 Delivery.

New York, Nov. 8. (By wire.) — Railroads appear to have begun in earnest to place orders for rails covering forward needs. Southern roads are especially actively interested in rails for winter shipment. The Louisville & Nashville has placed 50,000 tons of open-hearth rails with the Tennessee Coal, Iron & Railroad Co., and two other southern lines are inquiring for 50,000 tons additional, part of which will be placed this week. The Burlington road has awarded 20,000 tons for next year's delivery to the Illinois Steel Co. to be rolled at Gary. The Norfolk & Western has practically closed for 25,000 tons which will go to northern mills including a considerable portion to the Carnegie Steel Co. The Atchison road recently placed a supplemental order of about 10,000 tons with the Illinois Steel Co. The Great Northern is in the market for 40,000 tons, but the report that it has closed is premature. The Pennsylvania, New York Central and Baltimore & Ohio are getting ready to place orders for next year's delivery.

BESSEMER HIGHER

In Small Sale.—Foundry Makers Won't Meet Low Price.

Pittsburgh, Nov. 8. (By wire.)

A small lot of Bessemer pig iron has been sold at $14.50, valley, 25 cents a ton above the price at which two small lots were sold ten days ago.

Some furnaces will not meet the low prices noted recently on foundry grades. In addition to sales previously reported a consumer east of Pittsburgh has taken several hundred tons of foundry iron. Pending inquiries involved 500 tons of gray forge and small lots of malleable.

Obituary

John B. Waring, an inventor of note, died at Flushing, N. Y., recently, at the age of 77. He was a pioneer steel pen manufacturer and had devised an ore crusher and other mechanical devices. At one time he was engaged in the foundry business.

Leonard Bullion, aged 56, who had been identified with the metallurgical department of the Carnegie Steel Co. for a number of years, died Nov. 6, at his home at Swissvale, Pa. Mr. Bullion was born in Dunfermline, Scotland, in 1855, and came to this country at an early age and spent practically his entire life in the employ of the Carnegie Steel Co.

Dr. Eugene Goodwin, secretary of the Pacific Coast Hardware and Metal Association, committed suicide, at Berkeley, Cal., on Oct. 23. Goodwin was to be a witness before the federal court in Los Angeles in November and it is believed by his associates that the fact of being compelled to divulge business secrets in the inquiry being conducted under the Sherman anti-trust laws preyed on his mind.

John L. Lewis, aged 73, founder and former president of the Lewis Foundry & Machine Co., Pittsburgh, died Nov. 6, at his summer home, at Erie, Pa., after a week's illness of pneumonia. Mr. Lewis was born on the Southside, Pittsburgh, and had always been a resident of that city. About 1870 Mr. Lewis and others organized the Lewis & Rossiter Foundry Co. Following the withdrawal of Mr. Rossiter, the company became the Lewis Foundry & Machine Co., of which Mr. Lewis was the principal owner and the president until he retired from active life some time ago. Mr. Lewis was an able writer, having contributed articles on iron and steel to the various trade papers.

Daniel D. Drawbaugh, who contested with Professor Bell as to the original invention of the telephone, died at his home near Harrisburg, Pa., Nov. 2, at the age of 84. He laid claim to the invention of the telephone in 1881, but a legal suit, brought upon this ground, was decided against him. He first began to experiment with the electrical transmission of speech in 1860 and in 1869 he invented an instrument that satisfied his ideas. Mr. Drawbaugh was an inventor of much prominence and was the deviser of numerous machines, including the first nail-making machine, pneumatic tools, electric grain-weighing devices and interchangeable telephone and telegraph apparatus, telegraph senders, etc.

Continue as Usual.—The Ohio Iron & Metal Co. has officially denied a report recently circulated in the trade that it expects to close its offices in Pittsburgh and Chicago. The main office in the First National Bank building, Chicago, is to be continued as usual and also the branch offices in Pittsburgh and New York.

The Clinton stack of the Clinton Iron & Steel Co., Southside, Pittsburgh, was blown in Nov. 4.

UNFILLED ORDERS

Of Steel Corporation Increase—Tin Plate Active.

New York, Nov. 8. (By wire.)—The unfilled orders of the United States Steel Corporation during October show an increase as the new business booked exceeded shipments. That an increased tonnage of railroad material is included in the new business is indicated by the fact that Pittsburgh and Chicago mills, during the week, booked about 30,000 tons of shapes and plates which represent the requirements for small and miscellaneous car orders. The sheet trade is active and large contracts for tin plate for forward delivery are being placed by packers. The mills in the Chicago district are running about full, which reflects the strength of the geographical position of such plants under present conditions, when Pittsburgh base quotations are loosely regarded. The Union Sulphur Co. has placed a cargo freighter with an eastern ship yard, which will require 5,000 tons of plates and shapes.

Personal

William Guggenheim has been elected chairman of the finance committee of the International Steam Pump Co.

Louis Brown has been elected president of the Oil Well Supply Co., Pittsburgh, to succeed the late John Eaton.

Harry W. Frister, who has been associated with the New York office of Rogers, Brown & Co., as salesman, has resigned and has accepted a position on the selling staff of the Pyrene Fire Extinguisher Co., New York City.

J. F. Deems, general superintendent of motive power, rolling stock and machinery for the New York Central lines, has resigned to accept the presidency of the Ward Equipment Co.

Charles E. Crofoot has organized and will act as general manager of the Crofoot Gear Works, Haverhill, Mass. Mr. Crofoot was formerly connected with the Boston Gear Works.

Chas. M. Schwab, president of the Bethlehem Steel Corporation, who has been in China, is expected to arrive in Paris this week on his return trip to the United States.

J. F. Deems, general superintendent of motive power, rolling stock and machinery of the New York Central lines at New York City, has resigned to become president of the Ward Equipment Co., New York, manufacturer of car heating and ventilating systems.

A Large Modern Iron Ore Concentrating Plant

Description of Mill No. 3 at Mineville, Essex County, N. Y., Operated by Witherbee, Sherman & Co.

By H. Comstock

In Essex county, N. Y., six miles west of Lake Champlain and the village of Port Henry, is located the industrial village of Mineville and the group of magnetite mines belonging to Witherbee, Sherman & Co., Inc. These mines are equipped to produce annually 1,000,000 tons of high grade ore and concentrates. The three principal ore bodies are Old Bed, Harmony and Barton Hill, and from these ores nine distinct merchantable products are obtained, including lump or for puddling fix and basic open-hearth addition and furnace ore. Old Bed concentrates and apatite are shipped from the Old Bed vein. From the Harmony vein are shipped Harmony concentrates, middlings, tails and extra high grade concentrate, running 71.4 per cent in iron. The concentrates from Barton Hill ore form the other product. These ores are at present treated in three mills. Mills Nos. 1 and 2 treat the Old Bed ores; mill No. 3 treats the Harmony ore, and a new mill for treating Barton Hill ore is now under course of construction. Mill No. 3 is the latest and most approved type of magnetic separating plant and embodies a number of new features in its construction.

Mill No. 3.

The output of the Harmony mine is obtained from two shafts, known as "A" shaft and "B" shaft. These two shafts are situated about 600 feet apart and Mill No. 3 is located between them. This mill is a rectangular structure, 52 x 156 feet, with a motor and switchboard room on the side, 26 feet x 52 feet. It is built of concrete blocks, 8 x 10 x 20 inches in size. The pilasters are 30 x 30 inches and spaced 13 feet apart. The pilasters, as well as the curtain walls, are built of hollow blocks, but in the pilasters, these hollow spaces are filled with concrete and the center core and outside corners are reinforced with scrap cable, 1⅛ inches in diameter. It is estimated that 50,000 feet of cable were used in the construction of this building.

The mill is 52 feet high from the ground floor to the bottom of the roof trusses. The distance from the ground floor to the first floor is 31 feet and from the first to the second floor, 10 feet. These floors are made of concrete, reinforced by steel cable resting on steel I beams. The I beams are supported by concrete columns also reinforced with cable. These columns support the bearings for all the transmission machinery. The roof trusses are of steel, covered with corrugated iron.

At the end of the mill nearest "B" shaft is a circular concrete storage bin, 25 feet in diameter and 49 feet high. This bin has a capacity of 1,200 tons of crushed ore. A spur of the Lake Champlain & Moriah railroad runs parallel with the length of the mill. At the end next to "A" shaft and over this spur is located a rectan-

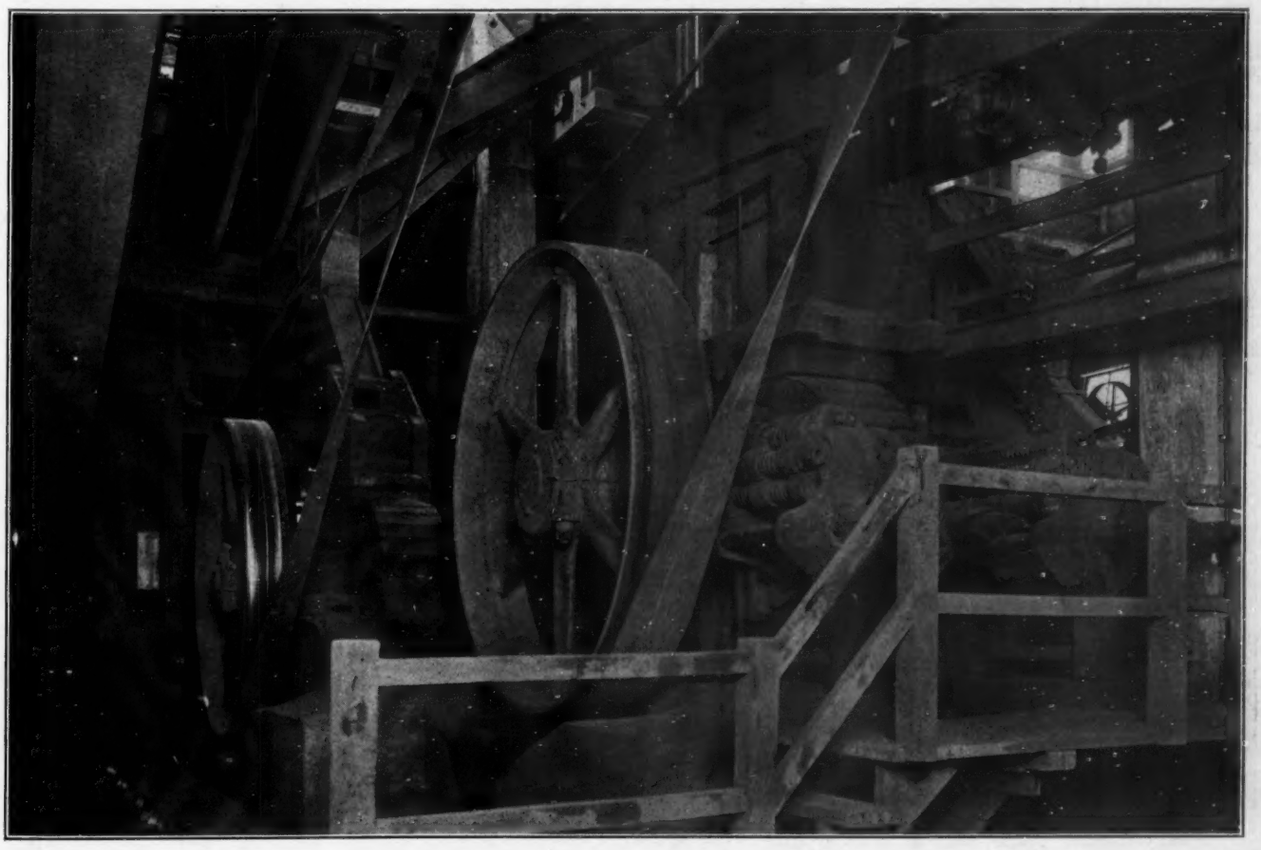


FIG. 1—A VIEW OF THE 42 x 16-INCH AND 40 x 15-INCH ROLLERS

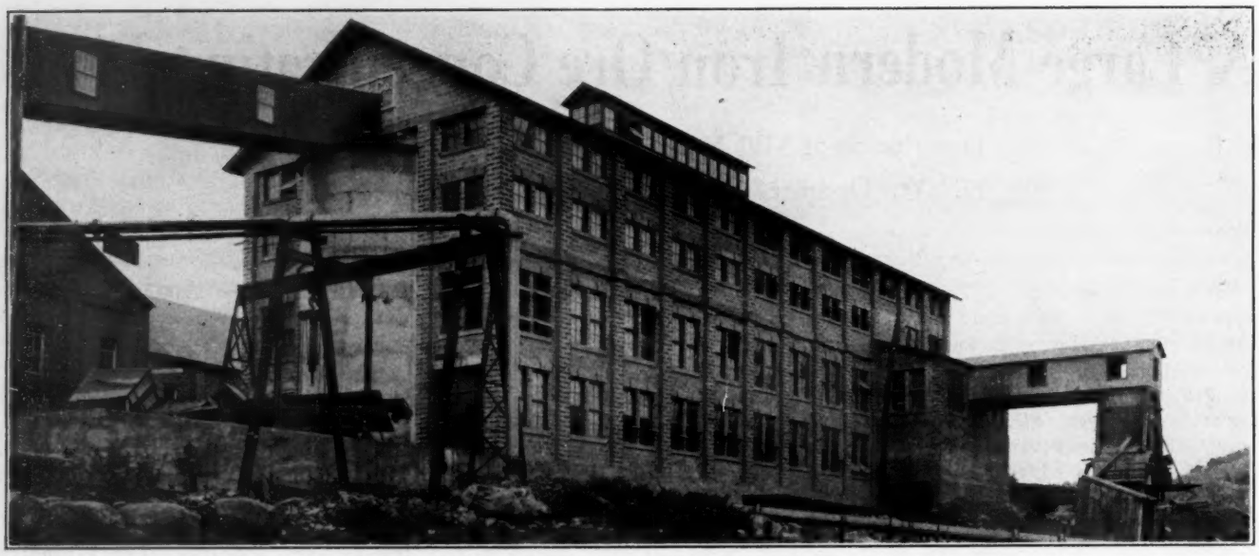


FIG. 2—NO. 2 MILL, OPERATED BY WITHERBEE, SHERMAN & CO., AT MINEVILLE, N. Y., WHICH SHOWS THE STANDARD FORM OF CONCRETE BUILDING CONSTRUCTION

gular concrete storage bin of 300 tons capacity. The finished concentrates are stored here for shipment.

The ore from "B" shaft is dumped directly from the skip into a receiving pocket and then fed by gravity into a 30 x 18-inch Blake crusher, driven by a 35-horsepower, 440-volt, three-phase, variable speed induction motor. The material from the crusher is discharged onto a 20-inch conveyor, 325 feet long, and conveyed to the circular bin at the head of the mill. This conveyor is equipped with a Merrick weightometer which automatically records the weight of ore passed over the belt. A 20-horsepower, 440-volt, constant speed, three-phase induction motor drives this conveyor.

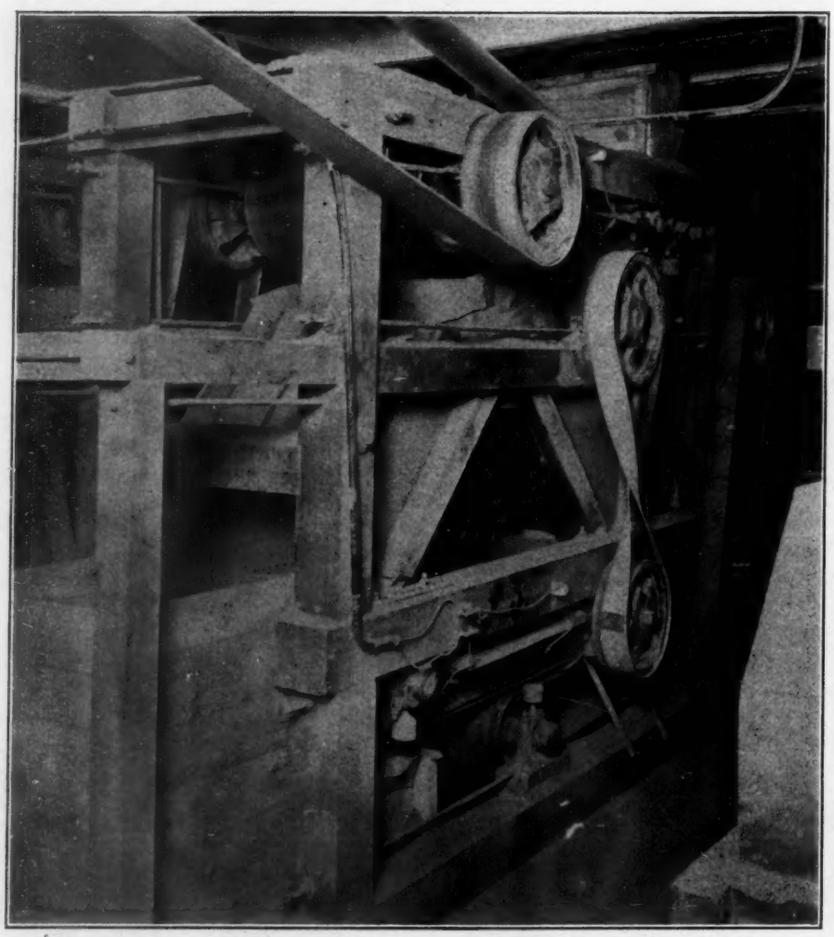


FIG. 3—DOUBLE DECK BALL & NORTON BELT TYPE MAGNETIC SEPARATOR

At "A" shaft the ore is dumped from the skip directly into a No. 8 Gates crusher, driven by a 35-horsepower motor of the same type as the crusher motor at "B" shaft. From the crusher the ore is conveyed to the circular bin by a 20-inch conveyor, 275 feet long, driven by a 20-horsepower, 440-volt, three-phase induction motor. This conveyor is also equipped with a Merrick weightometer. The primary crushers at "A" and "B" shafts reduce the material to 4-inch size.

Bucket Elevator.

From the circular storage bin the ore is delivered by an automatic shaking feeder to a bucket elevator of 500 tons hourly capacity. The buckets on this elevator are 30 inches wide, 15 inches long on the belt, and have a 12-inch lip. This elevator, by means of a dividing box, discharges the ore into two 48-inch x 12-foot iron frame revolving screens, having 12 feet of ½-inch plate punched with 2-inch holes. The oversize product from the screens is returned by gravity to two No. 6 Gates crushers. After passing through the secondary crushers, the ore is delivered by gravity to the elevator and returned to the screens. This operation completes the crushing and nothing larger than 1½-inch material is received from the rotary screens.

After passing through the screens the crushed ore is discharged by gravity into two small receiving bins,

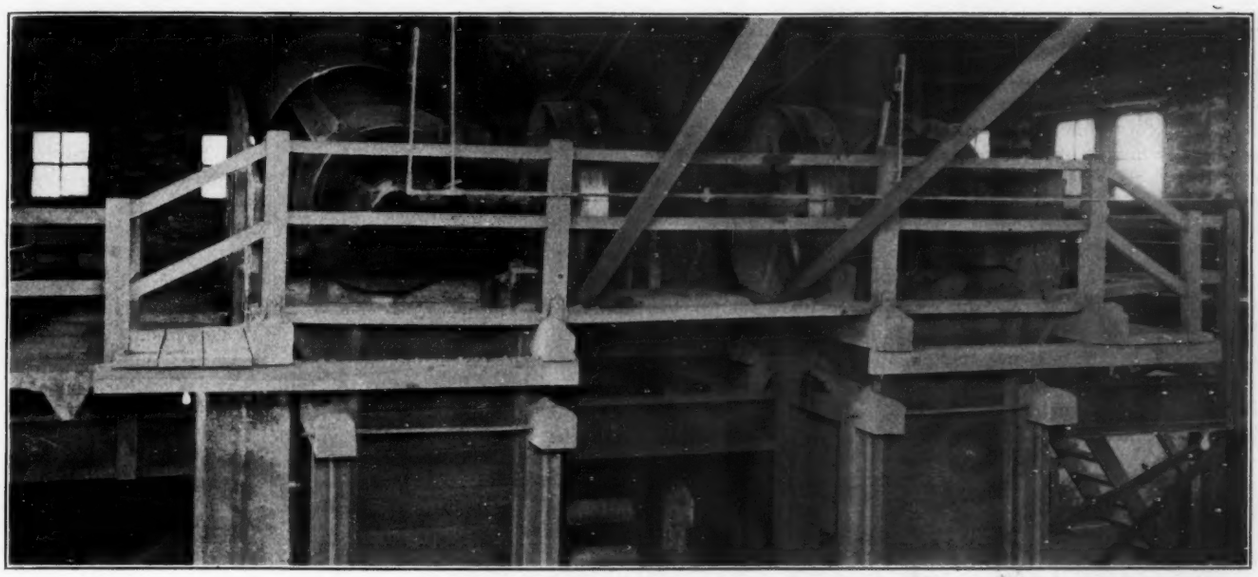


FIG. 4—TWO 40-INCH x 16-FOOT REVOLVING IRON FRAME SCREENS

each fitted with 24 x 12-inch plunger feeders, which distribute the material to two 48-inch diameter by 30-inch face, single drum, magnetic separators. These drums remove the rich heads and deliver them by gravity to a 20-inch concentrate conveyor. This conveyor runs lengthwise of the mill and delivers its material at the tail end to a 20-inch cross conveyor, which in turn discharges it into a small bucket elevator delivering the finished concentrates to the shipping bin over the railroad tracks.

Magnetic Separator.

The tails from the above separation drop onto a short, 20-inch conveyor belt and are passed over a 30-inch diameter by 24-inch face pulley-type magnetic separator. In the ordinary drum machines, the magnets are arranged radially and occupy about two-thirds of the available space. The drum revolves around stationary magnets. In the pulley type machine, the magnets are similarly arranged, but cover the total periphery. They also revolve with the drum. The current is conducted into the machine by means of copper leaf brushes bearing on revolving brass rings. These rings are connected to the windings. The magnets are totally enclosed with sheet brass and are designed with especially strong windings. This separator is used as a head pulley on the conveyor and is placed directly over the first set of coarse crushing rolls. The pulley type separator was designed by the company's engineers to work on coarse material and with magnets strong enough to remove any of the product that runs above 12 per cent in iron. The tails from these separators are conveyed to the end of the mill and are discharged into a bucket elevator which carries them to a small storage bin situated outside of the mill. From this bin the tails are loaded by gravity into a tram car and dumped, or can be loaded into standard gage cars for shipment.

By means of the two drum and two pulley type machines described, very efficient three-part separation is made. The first two drum machines remove

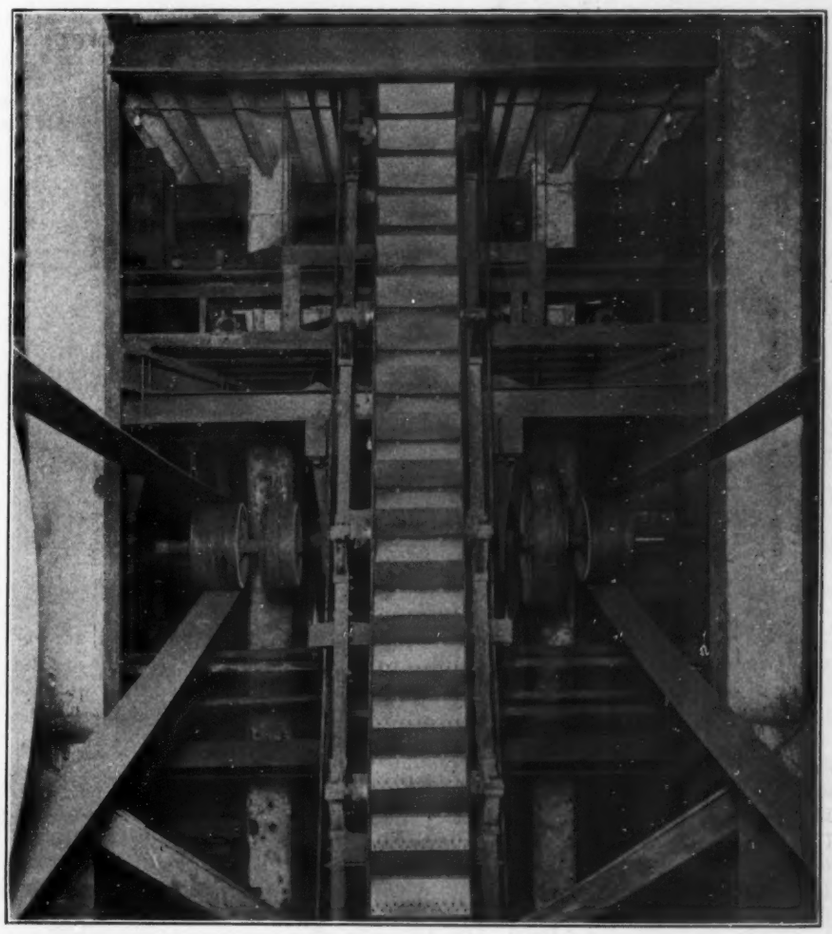


FIG. 5—A VIEW OF ELEVATOR NO. 2, WHICH ALSO SHOWS THE GENERAL INTERIOR CONSTRUCTION OF THE PLANT

the heads and the second pulley separators make middlings and tails. The heads and tails require no further treatment and only the middlings are re-ground. In this manner more than one-third more of the grinding is saved than is recovered by the ordinary magnetic separating plant.

Middlings.

The middlings from this three-part separation drop directly into extra heavy, 42 x 16-inch rolls, which reduce the ore to one-inch cubes and smaller. From the rolls the ore is delivered by a 20-inch conveyor to a bucket elevator of 350 tons hourly capacity. This elevator discharges into two 40-inch x 16-foot revolving screens. The first 10 feet of the body of the screen has one-inch holes, the last six feet has 1¼-inch holes. Over the first section of screen is an outer screen punched with ⅛-inch holes. This screen makes three products. The largest size is over 1¼ inch, the next size is a mixture of the material that passes through the 1¼-inch and one-inch screens. The third size is the ore that passes the ⅛-inch holes in the outer screen. The over-size product from these screens is delivered by chutes into two 40 x 15-inch rolls which reduces the ore to about ⅛ inch size. After passing through the rolls, the material is conveyed back to the elevator and is again delivered to the screens. The second size product from the screens drops into a small pocket and from here is fed onto two small, single-drum separators, by 16 x 8-inch automatic plunger feeders. These drums are 30 inches in diameter by 16-inch face and are similar to the drums previously described. The heads from these machines are delivered to the concentrate belt formerly mentioned. The tails pass with the over-size product back to the rolls and are re-ground and again elevated to the screens. The third and small size product drops from the screens into receiving pockets and is distributed by roller feeders to two double and two single Ball & Norton separators. These double separators are 26 inches wide and are arranged one above the other.

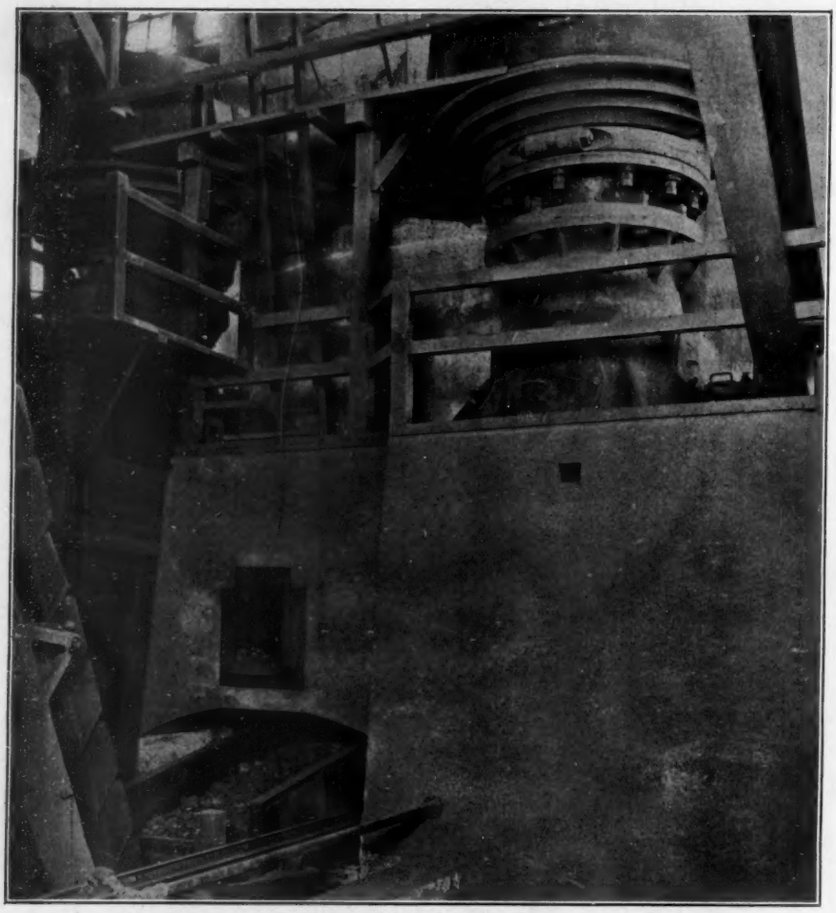


FIG. 6—SECONDARY CRUSHERS, STORAGE BIN AND SHAKING FEEDER

The Heads and Tailings.

The heads from the belt separators are delivered to the concentrate belt. The tailings from this separation pass into a chute which is fitted with four sections of 18 x 24-inch screen plates with ⅛-inch slots. The object of this screen is to remove the fines and thus relieve the rolls. The over-size from these screens pass by gravity to two sets of 40 x 15-inch rolls. After passing through the rolls, this material is discharged onto a 20-inch conveyor belt carrying the fines from the gravity screens. This material then passes over two pulley type separators of the same size as described. The tails from these separators pass directly onto the tailings conveyor. By means of two 14-inch cross conveyors the heads are delivered to the boot of a small bucket elevator which discharges into a pocket. This pocket delivers its material to a chute fitted with six sections of 18 x 24-inch screen plates with 3/32-inch slots. The over-size product from this screen is treated by a double Ball & Norton belt machine. The material that passes the screen is re-treated by two double Ball & Norton belt separators. These separators are of the same size and type as those previously described.

The design of the pulley type machine is such that it works equally well on either fine or coarse ore and the object in placing them at this point was to throw out part of the tails and relieve the belt machines so that closer work might be done. The final heads and tails are delivered to their respective conveyor belts. The concentrates are discharged into the shipping bin and the tails onto the dump or into cars for shipment.

Division of the Mill.

The mill is divided into two sections, either of which may be run independent of the other. Each side is driven by a 200-horsepower, 440-volt, three-phase, variable speed induction motor. A 300-horsepower auxiliary motor is held in reserve and by means of couplings, may be connected to either side of the mill in case of accident to either of the 200-horsepower motors. The current for the magnetic separators is obtained from a motor-generator set consisting of a 75-horsepower, 440-volt constant speed induction motor, direct connected to a 50-kilowatt, 125-volt, direct current generator.

The 25-cycle, three-phase, power circuit enters the switchboard room at 3,300 volts. It is here stepped down by oil-cooled transformers to 440 volts and distributed from the switchboard to the driving motors and motor generator set. The direct current supply is distributed from the switchboard to the various sep-

arators, each circuit having a rheostat and ammeter so that each machine may be adjusted independent of the others.

The building is lighted by incandescent and arc lamps. The wiring is all placed in conduit. The power for lighting purposes is obtained from the same set as that which supplies the separators. A recording wattmeter on the primary side of the transformers measures the power input to the mill and the consumption per ton of ore milled may thus be accurately determined.

The motor drive belts are double leather and all other drives in the mill, down to four inches in width, are rubber. The conveyor and elevator belts are also rubber. Below four inches in width, stitched canvas belts are used.

In the center of the building is a one-ton electric elevator for carrying men from one floor to another and also for handling all repair parts and supplies. The rolls are removed for turning by a trolley running on an overhead I beam. After being lifted from the frames, the rolls are placed on a hand car which carries them to a loading platform. On the platform they are placed in cars by a traveling crane and conveyed to the machine shop.

The crude Harmony ore contains about 51 per cent iron, 28 per cent silica and 0.2 per cent phosphorus. After passing through the process described, the concentrates average 64 per cent iron, 0.08 per cent phosphorus and about 9 per cent silica, forming a coarse granular product, ideal for blast furnace use. The tailings average about 10 per cent iron and 60 per cent silica. The iron recovery is thus from 96 per cent to 97 per cent.

The capacity of the mill on 64 per cent concentrates is 100 tons of crude ore per hour, but when middlings are being made, the capacity is considerably greater. The power consumption per ton of crude ore is about three kilowatt hours. This includes all the primary crushing and all handling of the ore after it leaves the skips.

In addition to the concentrates and middlings, the mill is equipped to produce a special, high grade product of the following typical analysis:

	Per cent.
Iron	71.00
Phosphorus	0.017
Silica	1.80
Alumina	0.20

These high grade concentrates are used principally in the manufacture of electrodes for magnetite arc lamps.

The high silica content in the tailings makes them very desirable for all kinds of concrete work. Test blocks made of this material have shown 25 per cent more strength than the ordinary sand blocks. The coarse tailings from the cobbers are used in road construction. After being sized, the finer tailings have considerable value as a material for roofs, chicken grit and sand blast purposes.

Test of Iron Center, Wood Rim Pulleys

The Dodge Mfg. Co., Mishawaka, Ind., several months ago received an order for two pulleys with a one hour rim test specified at a speed of 8,000 feet per minute. The dimensions of these pulleys were as follows: The largest was to be 100 inches in diameter, 22-inch crown face and 5⅞ inches approximate bore, while the smaller pulley was to be 74 inches in diameter, 22-inch crown face and 4 15-16 inches approximate bore. The rims were to be solid maple and the hubs, iron. These pulleys were to transmit 340 horsepower at a rim speed of 6,700 feet per minute with a 21-inch belt. When testing these pulleys the larger was operated at a minimum speed of 374 revolutions per minute and an average speed of 375 revolutions per minute. The average rim travel for the hour during which this pulley was tested was 9,817 feet per minute. The 74-inch pulley was operated at an average speed of 150 revolutions per minute and the average rim travel for the hour was 9,880 feet.

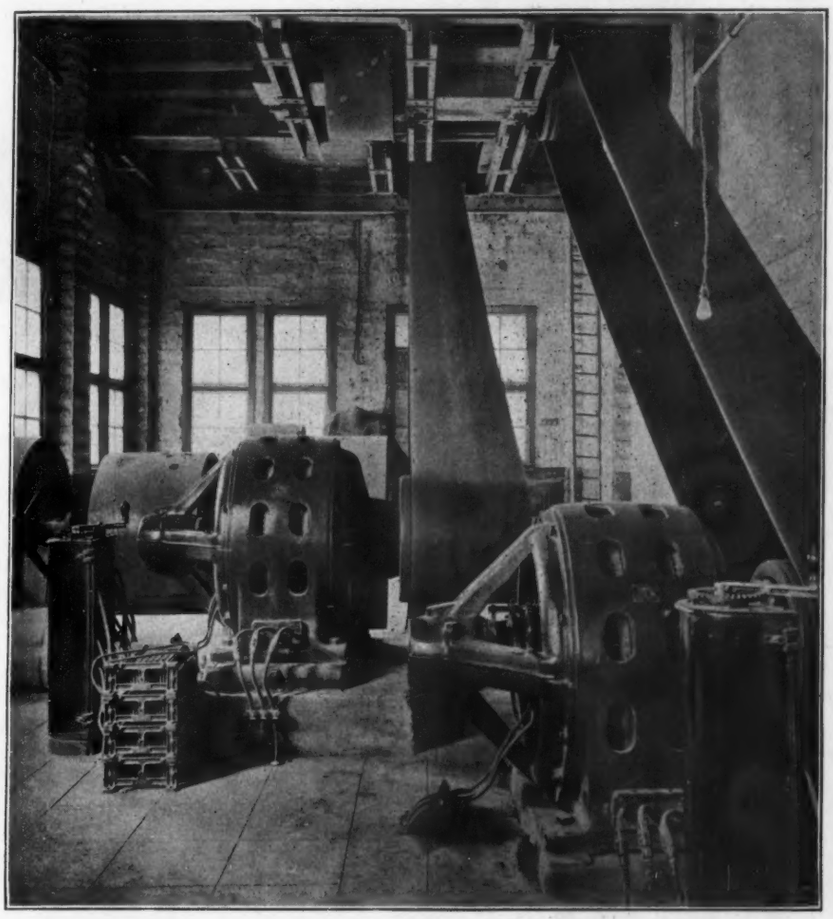
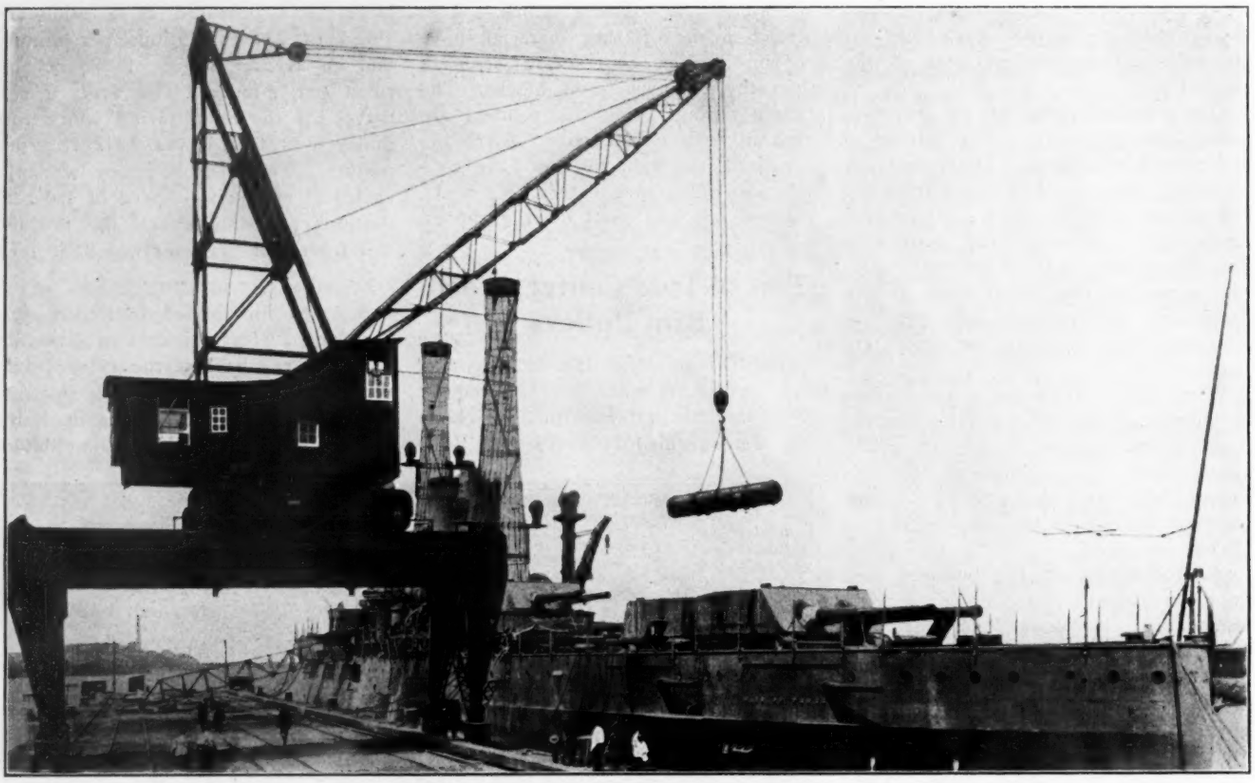


FIG. 7—A VIEW OF THE POWER PLANT, SHOWING THE MOTORS WHICH DRIVE THE MACHINERY OF NO. 3 MILL

A large illuminated bottle, 70 feet high and 20 feet 7 inches in diameter, which is revolved at the rate of two revolutions per minute, has been erected on top of a skyscraper in Baltimore. This unique advertising device is illuminated by 554, 16-candle power incandescent lamps. The weight of this bottle is 60,000 pounds and it is entirely sheathed with Nos. 14 and 16 gage galvanized sheets furnished by the Stark Rolling Mill Co., Canton, O.

The firm of T. P. Kelly & Co., New York City, manufacturers of foundry supplies and equipment, will be continued under its present name. The firm is now composed of M. F. Kerby, P. A. Kirby and W. F. Kaine Jr.



Revolving Locomotive Crane, Mounted on a Gantry, Installed by the New York Ship Building Co., at Camden, N. J.

New Type of Ship Building Crane

The New York Ship Building Co. has recently installed a crane at its Camden, N. J., plant which is of the revolving, locomotive type mounted on a gantry, and which was built by the McMyler-Interstate Co., Bedford, O. While similar machines are in use, particularly at the plant of the Maryland Steel Co., this crane is exceedingly novel, inasmuch as it is arranged to travel backward and forward on a gantry so as to serve two sides of the pier. The crane is designed to hoist a load at two different speeds, to revolve, to move backward and forward on a gantry and to travel along the dock by its own motive power. The crane, as shown in the accompanying illustration, has a capacity for lifting a load of 35 tons at a 20-foot radius or 15 tons at a 68-foot radius. The crane is moved along the gantry by a wire rope attached to each end of the gantry and the rope is wound around a drum underneath the center of the crane. This drum is driven by a worm. By this arrangement the machine is always locked so as to prevent the possibility of its moving across the gantry.

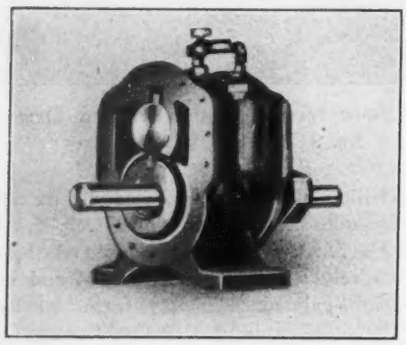


Fig. 1—Air Compressor for High and Low Pressure Duty

For propelling the crane along the dock a motor is provided which is located in the center of the gantry and from which power is transmitted to one truck on either side of the dock. One motor is used for hoisting the load and another for rotating, raising and lowering the boom and for moving the machine across the gantry. The crane has a capacity for hoisting 35 tons at a speed of 15 feet per minute and a 15-ton load at a speed of 30 feet per minute. The rotating speed is two revolutions per minute. The movement across the gantry is at the rate of 25 feet per minute and the travel speed is 150 feet per minute. These speeds are slower than originally contemplated on account of the lack of available power. The electric power is delivered to the crane by a third rail which extends along the dock and across the gantry underneath the rotating frame. The power is direct current, 220 volts.

Kinney Air Compressor

An air compressor for high and low pressure duty, built by the Kinney Mfg. Co., Boston, is shown in the accompanying illustrations. The compressor is of the rotary type and is actuated by a revolving cam on the shaft which imparts the oscillating

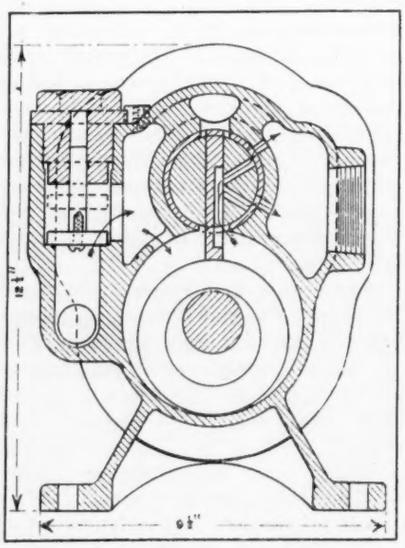


Fig. 2—Sectional View of High and Low Pressure Air Compressor

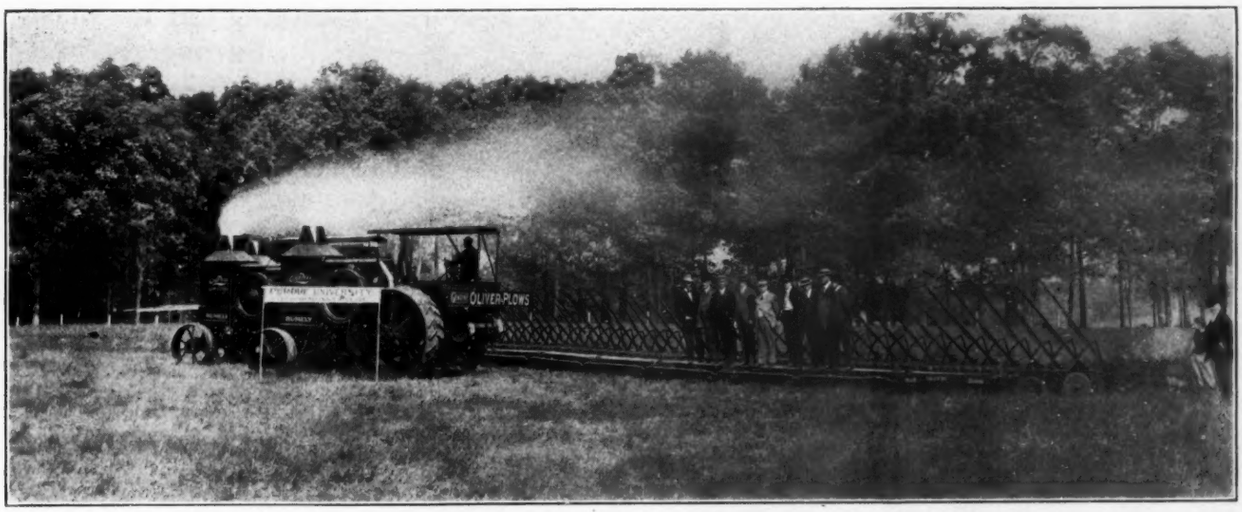


FIG. 1—THREE TRACTION ENGINES WHICH WERE USED TO DRIVE A UNIT OF 50 PLOWS

movement to the impeller, thus insuring a positive motion to the rotor and at the same time operates a valve which can be adjusted to any point of release in the discharge. The compressor is so designed that expansion from heat has no effect on its efficiency, thereby eliminating the necessity of water-jacketing. As a result, this machine can be used to advantage on building and bridge construction work for which portable outfits are used for pressures from 100 to 1,200 pounds. The compressor with the cover removed is shown in Fig. 1 and Fig. 2 is a sectional view.

The Master Boiler Makers' Association will meet in its sixth annual convention at Pittsburgh, May 14-17, according to plans just made by the executive committee.

A Marvelous Plowing Record

A new record in plowing was recently made at the Purdue University, Lafayette, Ind., during a field demonstration to test the efficiency of traction engines. Three engines, using oil for fuel, hauled one unit of 50 plows, which turned over a stubble field at the rate of one acre in four minutes and 15 seconds. This unit of 50 plows will cut a strip nearly 60 feet wide and has capacity of turning over seven acres every mile it travels. The former plowing record was made at Brandon, Man., in 1909, by B. G. Baker, Canadian sales manager for the M. Rumely Co., La Porte, Ind. He used a 25-horsepower Rumely traction engine and a 14-bottom plow, which cut a strip 16 feet, 4 inches wide. The engine was run without a governor belt at a speed of 3.99 miles per hour and plowed an acre in 7 minutes and 35 seconds. The plow was furnished by the Oliver Chilled Plow Co., South Bend, Ind. It was clearly demonstrated during this test that the gang plow readily adapts itself to uneven ground as each of the 50 plows constituting this unit was independent of the other plows and adapted itself to uneven surfaces. The three traction engines were built by the M. Rumely Co., La Porte, Ind. A low grade kerosene distillate which costs about four cents a gallon was used for fuel. The three engines consumed a total of 22 gallons per hour, the fuel cost having amounted to 6½ cents per acre. To increase the effectiveness of the demonstration the plows were set rather shallow and only plowed from 4½ to 5 inches deep on the average. This unit operated by three traction en-

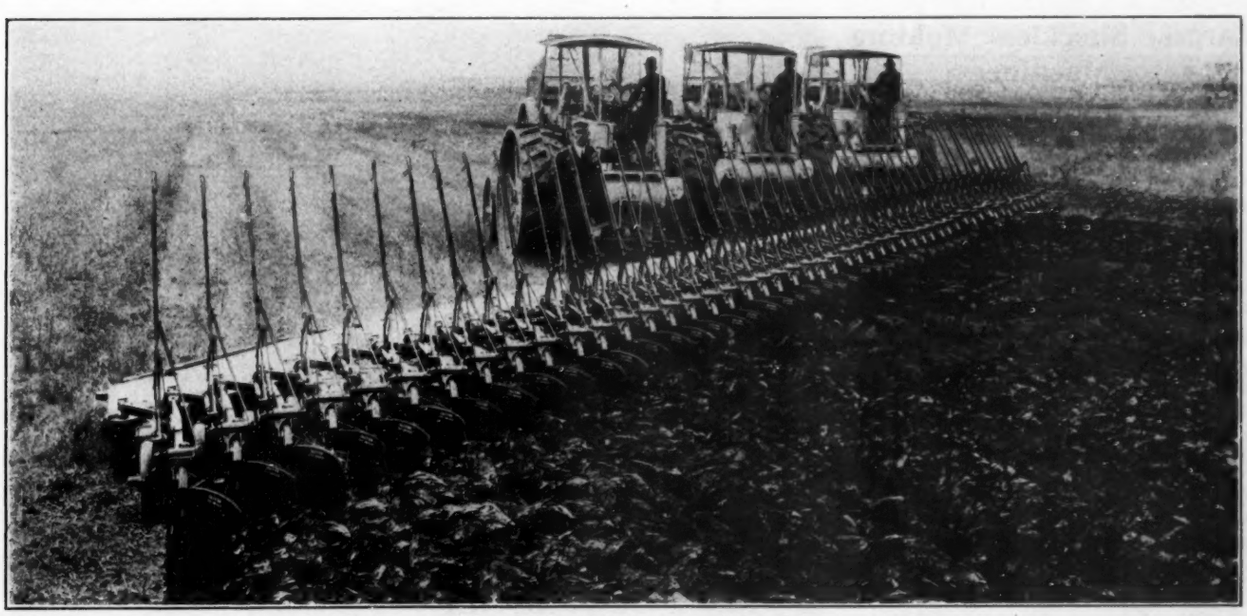


FIG. 2—THE COMPLETE PLOWING OUTFIT IN OPERATION, SHOWING A SECTION OF THE GROUND WHICH HAS BEEN TURNED OVER

TABOR SHOCKLESS JARRING MACHINE, EQUIPPED WITH A TABLE, 8 x 12 FEET; THE CYLINDER IS 36 INCHES IN DIAMETER

gines has a capacity for plowing 14 acres an hour and only four plowmen are required to handle this immense rig. In Fig. 1 are shown the three engines and the unit of 50 plows and Fig. 2 illustrates the complete outfit in operation, showing a section of the ground which has been turned over.

Largest Shockless Molding Machine

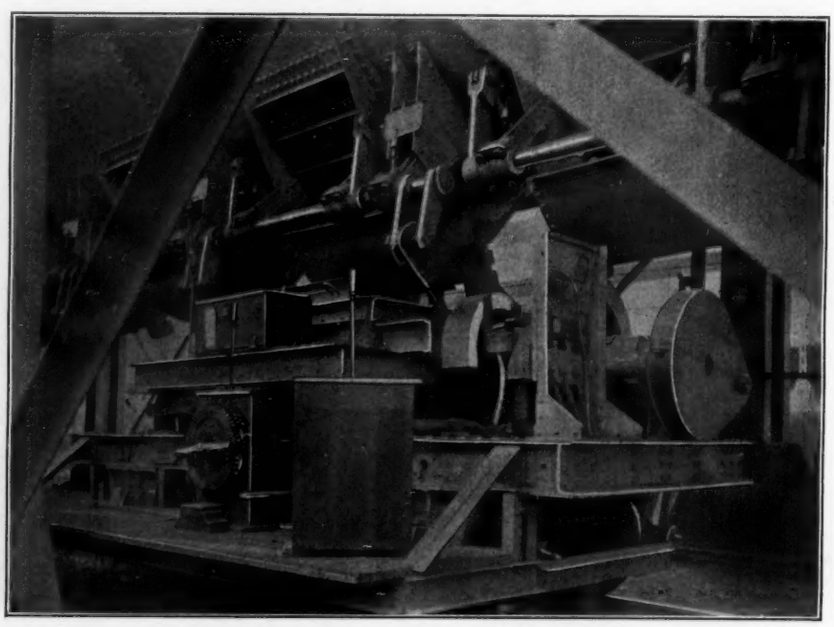
What is believed to be the largest jar-ramming molding machine ever built and which is the largest of the shockless type yet manufactured, is shown in the accompanying illustration. This machine was built by the Tabor Mfg. Co., Philadelphia, and is equipped with a steel table, 8 x 12 feet, with cylinder attached, 36 inches in diameter. It is mounted upon a plunger base of cast iron, weighing about 65,000 pounds. The plunger base is fitted in the cylinder base, five feet in diameter and rests upon 22 helical steel springs, aggregating over 3,000 pounds in weight. The total weight of the machine, as shown, is between 90,000 and 100,000 pounds. The machine has already been tested and will soon be shipped to a large iron foundry in the vicinity of Philadelphia. The tests have shown that the action and control is equal to that of any of the smaller machines of the same type and the company for which it has been built expects to ram molds with this device from six to eight feet wide and 12 to 18 feet long, weighing anywhere within the rated capacity of 50,000 pounds.

Charging Car for Blast Furnaces

An electrically-operated charging car, especially designed for use with overhead, parabolic ore, coke and limestone bin systems, is shown in the accompanying illustration. This car has a capacity of five tons and can be operated by one man.

The charging car is mounted on four wheels for operation on a standard gage track and is driven by an electric motor geared to the traction wheels. For the purpose of weighing the materials the car is provided with an eight-lever suspension scale, so arranged that the receiver is always suspended on the pivots of the scale which are accessible for inspection and cleaning. One of the important features of this charging car is the direct control of the swinging gates on the bottom of the bin or chute, whereby the operator can regulate the discharge of the material so that either a large or small quantity can be accurately weighed.

The swinging gates are mounted on a shaft and are provided with a double set of levers, one set engaging the swinging gate while the other connects with a pin which imparts an oscillating movement from the counterbalanced hook-arm on the charging car. The oscillating movement of this arm on the charging car is imparted by a variable speed motor which drives a train of gears that regulate the movement of the arm to a desired number of strokes per minute. A variation in the speed of this movement is essential for opening and closing the gate,



AN ELECTRICALLY-DRIVEN CHARGING CAR FOR BLAST FURNACES

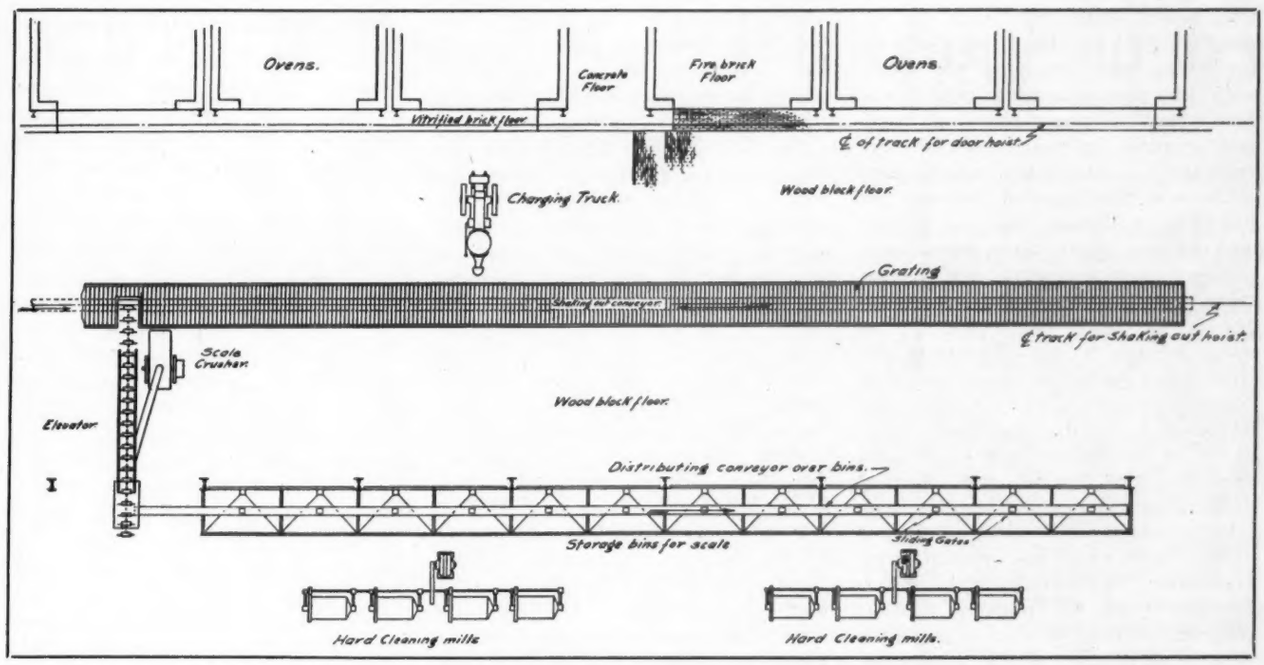


FIG. 1—PLAN VIEW OF ANNEALING DEPARTMENT, SHOWING OVENS, GRATING AND CONVEYOR, ELEVATOR AND SCALE DISTRIBUTOR

as well as for the discharge of a large or small amount of material. This counter-balanced arm is pivoted to a rotary disc driven by a train of gears.

Attached to one end of this arm is a counterweight, while on the other end is a hook which engages with the connecting pin of the swinging gate. The hook is provided with a latch which is so constructed that it can be used as a handle by the operator in engaging and disengaging the pin on the swinging gate. Both of the electric motors are controlled by Dinkey ventilated controllers placed on the operator's platform within easy reach of the operator. The current is taken from an overhead trolley system. Five charging machines of this type are now in operation in this country. These were built from the design made by Geo. K. Hamfelt, 1 Strandvagen, Stockholm, Sweden.

The Joseph Dixon Crucible Co., Jersey City, N. J., is mailing a card to the trade, which contains the specific gravities and melting points of iron, steel and non-ferrous metals. In addition, a list of the low fusion alloys is also given. This information should prove of value in every shop where metals of any kind are melted.

A desulphurizing and nodulizing kiln, recently patented by T. C. King, Marion, Ala., utilizes pyritic cinder and other finely divided iron ores which are not adapted for use in making iron. The new device reduces the sulphur content to substantially nothing and discharges a sintered and agglomerated product suitable for blast furnace use.

Annealing Equipment in Malleable Foundries

By Geo. K. Hooper

The magnitude of operations in malleable iron foundries necessitates the installation of various mechanical handling devices. An inviting opportunity for development, and one which has brought profitable returns, is found in the handling of the stacks of pots with the castings and scale for the annealing operations. The possibilities in a plant making bulky castings and producing several thousand a day are shown in the accompanying illustrations. This plant has been in operation for about a year and a half, a sufficient period to prove its satisfactory and economical operation. It will be noted that the hard cleaning mills are so located that the cleaned castings may be placed upon a bench where, after snagging, they can be loaded directly into the pots, the storage bins for scale being directly over this bench. The soft cleaning barrels are in another room adjacent to the finishing department. The ample space in front of the furnaces has proved a great benefit.

In considering the development of these mechanical handling devices we

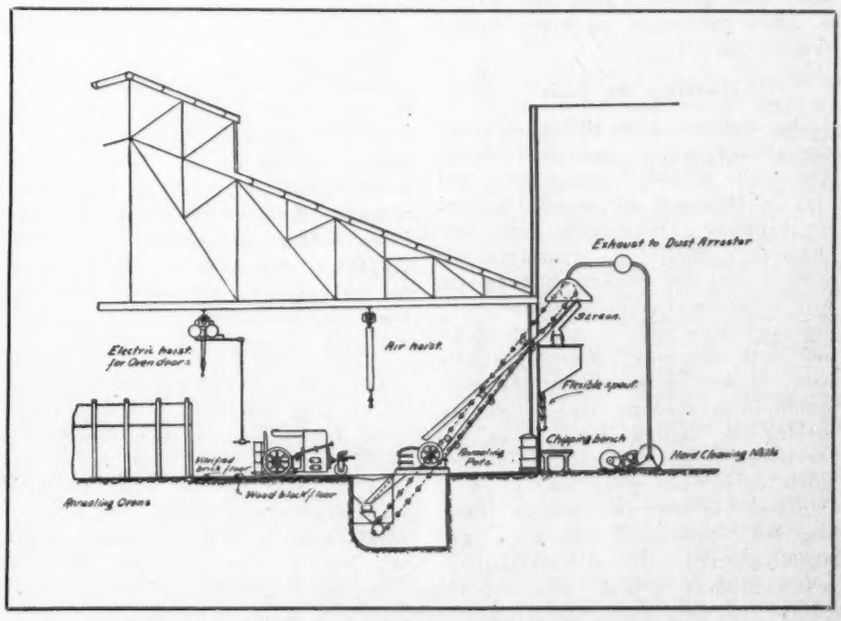


FIG. 2—END ELEVATION OF ANNEALING DEPARTMENT, SHOWN IN FIG. 1

must begin, historically, with the replacing of the old hand truck or fork for filling and emptying the oven, with the power-charging truck. The first type of power-charging truck was operated by compressed air, necessitating a complicated arrangement of hose which required laborers for handling. Following the compressed air machine there were introduced, almost simultaneously, the steam truck, with its own steam generator, and an electrically-operated device in which electricity was substituted for compressed air. The steam machine replaced practically all types, although its design is far from satisfactory, because of insufficient boiler capacity. However, this machine has changed a laborious and uncomfortable task into a comparatively easy duty and at the same time has effected great economies. Incidentally, the power-charging truck has made it possible through increase in size of the oven to take advantage of the greater efficiency obtainable with liquid, gaseous or pulverized fuel, which also permit the use of larger ovens, in keeping with the larger production of the modern foundry.

Referring to Fig. 1, it will be noted that the floor upon which these machines operate is of great importance, the loads being heavy and the vehicle self-propelled, conditions which cause much slippage of the rough treads of cast wheels, which, in turn, is hard on the floors ordinarily used. A prime necessity is a concrete foundation with a wearing surface of hardwood blocks on end. From an extended trial this type of floor appears to be satisfactory. For greater durability, an insulating strip of vitrified paving brick is laid along the front of the ovens and is covered with iron plates during the period in which the ovens are being loaded and discharged.

Handling the Scale.

The mechanical handling of scale has always been a serious problem. The scale is hot, lumpy, dusty and very severe upon any apparatus used for handling. One of the early mechanical methods of separating the scale from the shaken-out castings was to dump the entire mass—castings and scale—into a large tumbling mill with openings between the side bars. It was supposed that the scale would drop through these openings, leaving the castings fairly clean, but inevitably lumps of scale would not break up in such a mill and much of it passed out with the castings, which required subsequent separation and handling. The cost of carrying the whole product to one place and the return of a heavy load of pots, bottoms, etc., did not prove economical, and the handling of the whole of the lumpy scale was likewise expensive.

The best method for shaking out the scale is to provide a grating with a conveyor underneath for receiving the scale, which delivers it to a suitable place for screening, crushing and the removal of the dust. To support the loads and to withstand the shocks caused by the dropping of pots filled with scale, the grating must be heavy and well-supported. The conveyor under the grating must withstand severe service in loading and changes of temperature. Its driving apparatus must be isolated.

When the scale has been delivered to the point for screening and for the removal of dust, it will be fairly cool, but the work of elevating and screening requires a construction with parts of ample size. The removal of dust greatly increases the quality of the scale because it consists principally of inert material of no value in the annealing process.

Apparatus of considerable power is essential for crushing the lumpy scale which may be conveyed from the screening operation direct to the crushers, which in turn discharge into the conveying system.

Overhead Bins.

From the crusher the conveyor distributes the scale to overhead bins from which it is discharged through flexible spouts into the annealing pots. The scale and castings are then thoroughly settled in the pot. This simple method is quite as efficient as a complicated jarring device.

Another recent development is the application of liquid, gaseous or pulverized fuel to reduce the time of annealing operation. This is accomplished by reducing the time of raising the oven with its charge up to annealing or soaking temperature. The choice of fuel depends largely upon local conditions. Pulverized coal, when carefully ground to proper size, is economical and satisfactory. The length of the oven is important in this connection, and an oven 45 feet long can be handled safely.

The production of pig iron in Sweden in 1910 amounted to 603,939 tons. This total included the production of 82 furnaces. The total output of iron ore was 5,549,987 tons, surpassing all previous records and was 1,164,000 tons in excess of the preceding year. The northern province contributed 3,500,000 tons of iron ore.

Swedish Iron Ore Exports

As the aim of the Swedish government is to conserve the natural resources of that country, it does not encourage the exportation of iron ore from other than the northern fields, as owing to the cost of transportation these ores cannot be profitably used in Sweden. No objection is made to ore exports from this section, although certain conditions are imposed by the government, in the form of a contract with the mining company working the deposits which, with the limited capacity of the railway, curtails the output. The railroad into the northern field extends in a northwesterly direction from the Gulf of Bothnia at Svarton, to the North Sea, at Narvik in Norway. The line is 250 miles long and is almost entirely in Swedish territory, and is owned by the government. It connects with two principal iron fields, both of which are worked by the Grangesberg Co. One-half interest in this company is owned by the government.

The Grangesberg fields in central Sweden are also operated by the same company, and as they are so situated that the product can be used in Sweden, the government has ordered the reservation of the ore for domestic use. Consequently, the amount that can be exported from this source is limited to 650,000 tons annually, until 1917, when it will be reduced to 450,000 tons, according to the terms of the contract between the government and the company. The term of this contract is 25 years, from 1908 to 1932, and applies also to the northern fields and limits the total amount of ore that can be exported from this source during this period to 93,750,000 tons. Of this total, 75,000,000 tons are to be shipped from the Luossavara-Kiruna fields, located 105 miles from Narvik.

A contract is entered into each year between the government and the mining companies fixing the amount of ore that may be carried by the state railroad for export from the Gulf of Bothnia or the North Sea. The amount that may be exported from the Kiruna fields must not exceed a total of 3,500,000 tons per annum, nor in any year can it exceed the export shipments of the preceding year by more than 400,000 tons.

Reports from Boston state that plans for the reorganization of the Western Steel Corporation, recently adjudged bankrupt, will be announced in a short time.

A Well-Designed Malleable Iron Foundry

General Arrangement of the Prescott Malleable Iron Co.'s New Plant With a Description of the Furnaces and Annealing Ovens

In spite of a long continued business depression, the growth of the foundry business in the middle west has not been checked, and in each of the larger cities of the Mississippi valley the past year has witnessed the construction of one or more new plants. The increase in the demand for castings in the northwest particularly has been such that a large amount of the new construction has been concentrated in northwestern cities, among which Milwaukee has been exceptionally prominent. Among the latest plants to be built in the Wisconsin metropolis, is the new malleable foundry of the Prescott Malleable Iron Co., which commenced operations in September, 1911.

This shop is situated on a low plateau in the western end of the city, where the working conditions are most favorable and the railroad connections exceptionally good. The plant consists of three buildings, including a main foundry with an annealing building and power house parallel thereto as shown in Fig. 1. The shop is equipped with two 14-ton air furnaces and is designed to employ 120 molders. For the present four annealing furnaces, each with a capacity of 44 pots, have been erected and space has been provided for the construction of four additional furnaces when the output of the shop justifies their erection. The plant has been designed primariiy to turn out large quantities of small castings, particularly for agricultural implement manufacturers. Most of the molding is done on machines and the men are paid on a piecework basis as far as this is possible.

Layout of the Plant.

The buildings are of steel frame construction with brick curtain walls and fireproof roofs. The windows are unusually large, occupying 80 per cent of the total wall area between the floor and the eaves. The buildings were erected by the Worden-Allen Co., Milwaukee, and only 15 weeks were required for their construction. The main foundry building is 506 feet long and 80 feet wide; the core room occupies 20 feet at one end and the pattern shop takes up 25 feet at the other, leaving a molding floor 461 feet in length. The net available area of the molding floor is approximately 35,500 square feet. The annealing building, 250 x 70 feet in size, is parallel to the main building, the distance between the center lines of the two structures being 127 feet. The offices of the company, and the cleaning room are located in the annealing building. The power house, which is situated south of the annealing building, is 50 feet long and 35 feet wide.

Between the annealing building and the main foundry is a passageway or alley 52 feet wide which is used for the storage of raw materials, including coal, coke, pig iron, scrap and sand. This yard is traversed by a standard gage track over which the cars carrying raw materials are switched in. A 24-inch gage industrial track, which connects with all parts of the plant, also runs the full length of the storage yard parallel to the standard gage track.

In common with most malleable foundries doing light work there are no overhead cranes in the molding room, but a narrow gage industrial railway on which light push cars are operated, is laid down the center of the room in front of the air furnaces. Suitable branch tracks extend at right angles in both directions, making every part of the shop accessible. These tracks are used for bringing in sand and flasks and for carrying the finished castings, sprues and gates to the cleaning and annealing departments. Special tracks, the functions of which will be discussed later, serve each of the air furnaces.

A malleable foundry producing light agricultural castings requires an exceptionally large floor area per ton of output, and in order to leave as much space as possible for setting up molds, the molding machines in this plant are placed close against the walls as shown in Figs. 2 and 3.

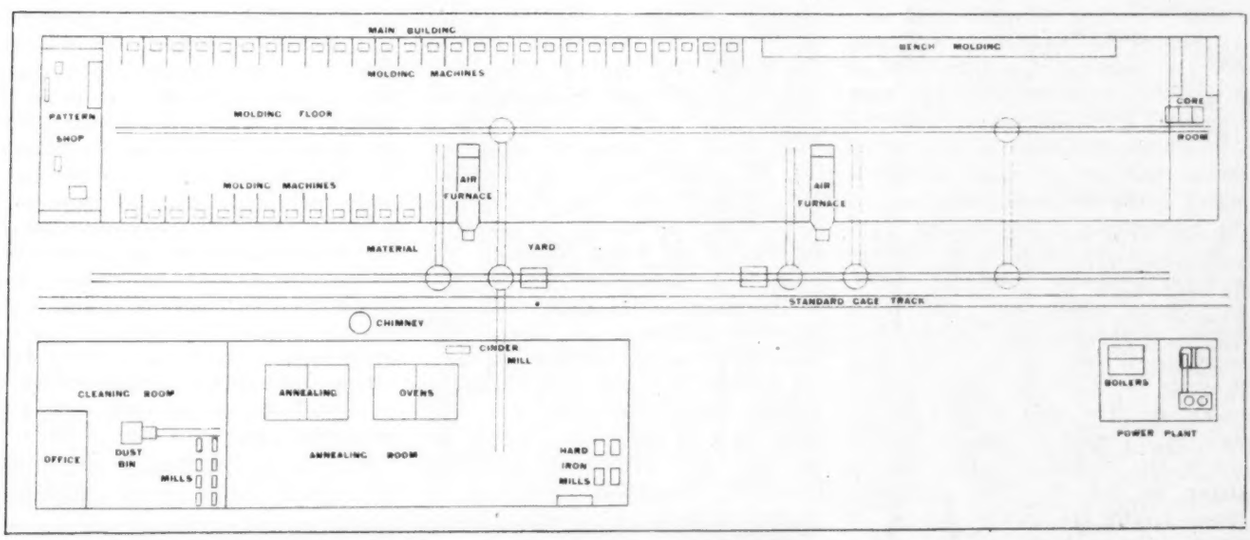


FIG. 1—GENERAL LAYOUT OF THE PLANT OF THE PRESCOTT MALLEABLE IRON CO.

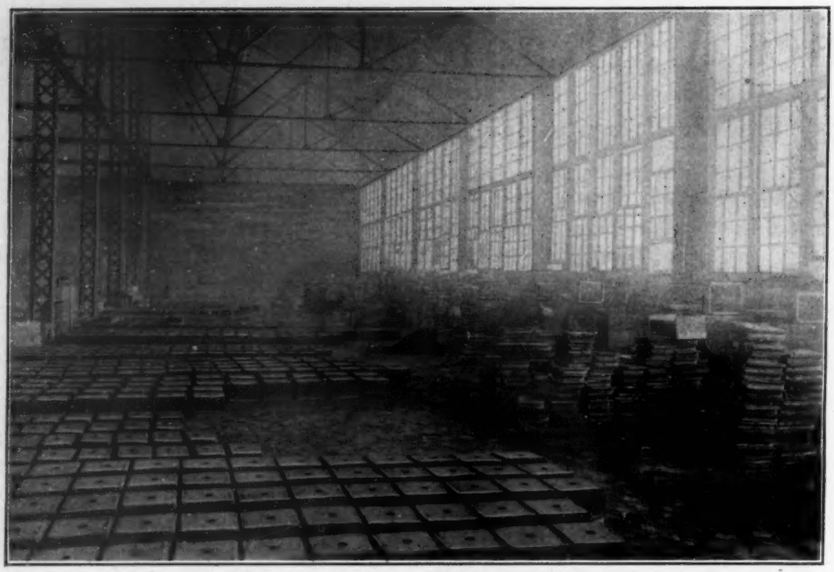


FIG. 2—MAIN BAY, SHOWING THE ARRANGEMENT OF THE SQUEEZERS ALONG THE WALL

The benches for hand work are also placed against the walls directly under the windows. Adams squeezers, installed by the Adams Co., Dubuque, Ia., are used throughout for snap flask work. Forty machines have been installed. Each machine is placed in a booth as illustrated in Fig. 3. A cabinet and set of rough shelves is placed at the left of each machine for the convenience of the molder. On it are kept the small cores together with the necessary small tools, brushes, bellows, riddles, etc. Everything needed by the molder is at hand and so arranged that he does not have to stoop or move out of his tracks to get it. The sand is piled at the right of the machine and the bottom boards are stacked on either side as shown in Fig. 3. This illustration shows clearly the careful manner in which the convenience of the molder has been anticipated. As indicated in Fig. 2, the finished molds are placed on the floor immediately back of each machine. Each man pours his own floor with hand ladles in accordance with the practice customary in malleable foundries. All molders are paid on a straight piecework basis.

Fig. 1 shows the location of the two air furnaces and Fig. 4 gives a detailed view of one furnace. The capacity of each furnace is 14 tons per heat. A standard design, somewhat modified to meet the local conditions, has been adopted. The furnace is set very low, it being the intention to raise the walls when additional capacity is desired; the firing door is on one side and the ash pit is at the end. The furnaces are duplicates, each one being 33 feet long overall and 8 feet, 10 inches wide outside. The side and front walls are 13 inches thick. As now constructed, the hearth is 17 feet long and 6 feet, 8 inches wide, but the rear bridge wall can be moved back about 4 feet, thus lengthening the hearth and increasing the capacity. The firebox is unusually roomy, being 54 inches long and 80 inches wide, giving a grate area of 30 square feet. From the top of the grates to the top of the bridge wall, the distance is 26 inches, and from the top of the grates to the roof at the center of the arch it is 51¾ inches. The throat between the fire box and melting hearth, over the bridge wall, is, therefore, 25¾ x 80 inches. The distance between the bottom of the firing door and the top of the grates is only 6 inches, thus compelling the fireman to keep a comparatively thin, even fire. The nature of the reactions on the melting hearth and success of the heat are so largely dependent on the quality of the fire that it is essential it be kept as uniform as possible and of even thickness so as to maintain a constant draft. The roof is built straight and is not drawn down over the bridge wall between the fire box and the hearth. This avoids the use of bungs with odd-shaped bricks, increases the life of the roof and reduces the expense. The common bungs in the roof are 13 inches wide while in the middle are two 9-inch charging bungs, which, when removed, leave an opening 18 inches wide. The bungs are removed by means of a tackle suspended from an I-beam trolley which runs over the top of the furnace. The skim door is only two inches below the top of the bridge wall.

Forced Draft.

Although each furnace is connected to a high stack, forced draft is used. The blast pressure is about eight ounces and is furnished by a No. 8 Buffalo fan direct-connected to a 25-horsepower motor. The fans, one for each furnace, with motor between, are mounted on a platform suspended from the roof trusses midway between the two furnaces. As shown in Fig. 4, the tuyeres, five in number, are placed directly over the bridge wall and are inclined toward the chimney at an angle of about 50 degrees. The outside tuyeres are placed 10 inches from the walls so the bricks will not be burned away.

The first heat each week is charged on a green bottom of the plain silica

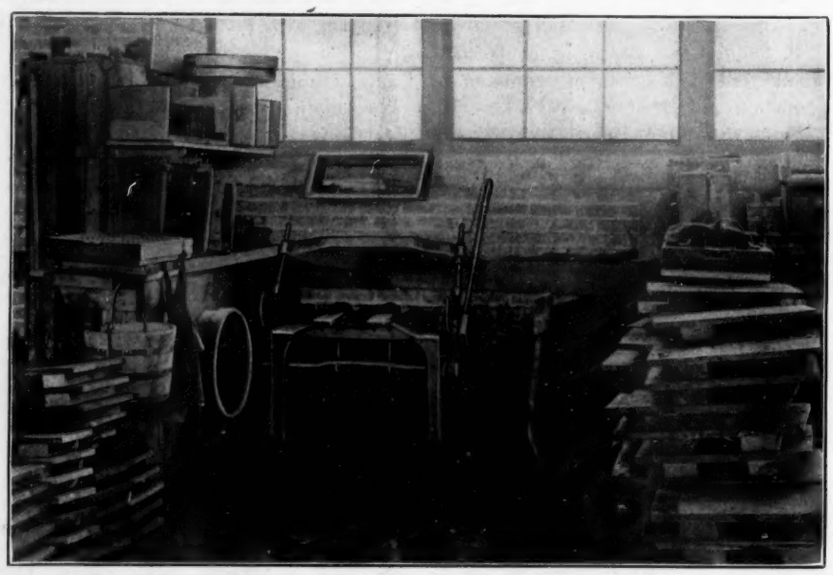


FIG. 3—SQUEEZER WITH CABINET FOR SMALL TOOLS AND SUPPLIES AT THE LEFT

sand. After the bottom has been made it is paved with boards on which the metal comprising the charge is dumped. When the boards are consumed, a hard, absolutely smooth bottom results which is good for twelve heats. At present, heats of only 18,000 pounds each are being run and the bath is about 4 inches thick tapering toward the back. On account of the thin bath, it is necessary to watch the heats carefully to prevent undue oxidation and to maintain a reducing atmosphere over practically the whole of the hearth. The capacity of the furnace is such that it will melt down an 18,000 pound heat from cold metal with a green bottom in 3¼ hours. The ash pit is situated in front of the furnace as shown in Fig. 4. The doors are sealed, but may be readily opened and the ashes are removed every two heats.

FIG. 5—INTERIOR VIEW OF ONE OF THE ANNEALING FURNACES, SHOWING THE PORTS

Charging and Firing Equipment.

Industrial tracks connecting with the storage yard extend along each side of the furnace, so it may be charged simultaneously from both sides, thus saving considerable time. Special cars have been built for handling the coal that is burned in the air furnaces. Each car has four wheels on which is mounted a box 60 inches long, 48 inches wide and 55 inches deep, open at the top. This box will hold about 5,000 pounds of coal, which is about all two laborers can push. One side of the box forms a door swinging on a hinge at the top and the cars are so placed on the track that this door comes opposite the furnace, the space between the track and the furnace being about 5 feet. When the loaded car is brought in, the swinging door is unlatched and opened so the coal may be shoveled directly from the car into the fire box without rehandling. It is estimated that the use of this simple device instead of wheelbarrows has cut the cost of handling coal between the storage bins and the furnace over 25 per cent. The cars carrying coal, pig iron and scrap pass over 5-ton track scales where the weight of everything that goes into the furnace is accurately determined.

When making small castings the silicon is kept low, around 0.70 per cent, and the mixtures are adjusted by analysis to get this result. In common with most other foundries doing similar work, malleable pig iron and scrap is charged in about equal proportions.

A core room has been fitted up at the south end of the main foundry. It is provided with standard equipment, including benches and tools for making the necessary small cores and a six-section, coke-fired, Millet shelf oven.

Annealing Furnaces.

After the castings are made they are transported to the annealing building on small hand trucks, where they are chipped, cleaned, packed and annealed. For cleaning the hard castings four tumblers each 28 inches in diameter and 42 inches long, motor driven, are installed at the south end of the building. The annealing room is 170 feet long and 70 feet wide and as previously described, is equipped with four furnaces. An interior view of one of the annealing furnaces is shown in Fig. 5. They are built in pairs with the fire box on one side. Each furnace is 20 feet long and 12 feet wide, inside. The general design, the arrangement of the roof and the binding are clearly indicated in Fig. 5, which also shows the ports connecting the interior of the furnace with the fire box. The ports are made successively smaller as they approach the grates in order to distribute the heat evenly throughout the length of the furnace. The take-off flues are near the floor in the wall opposite the ports. Under the floor there are three main longitudinal flues, equi-distantly spaced, which connect with the main chimney flue in the rear. The central flue is the largest of the three, being 18 inches square, and each of the others is 4

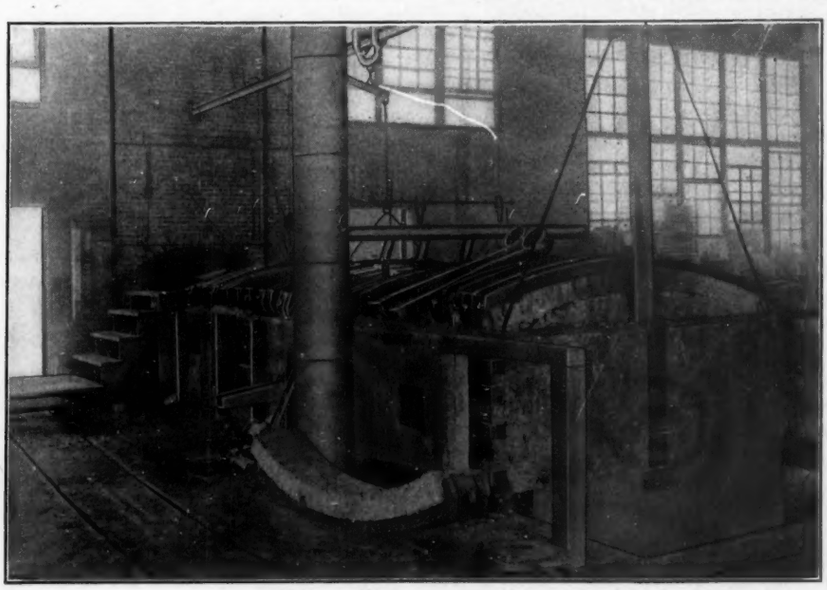


FIG. 4—ONE OF THE 14-TON AIR FURNACES

inches square. These flues are cross-connected by a series of auxiliary flues, making a complete network under the floor which distributes the heat very uniformly.

Annealing the Castings.

Plain cast iron annealing boxes are used, each one being 24 inches long, 14 inches wide and 15 inches high, with walls ⅞ inch thick. The boxes are packed four-high and are charged into the furnace with a hand buggy. Where only four annealing furnaces are operated, experience has shown that hand-charging is most economical, since there is not enough work to keep a machine in operation, even a small fraction of the time.

The castings are packed in mill scale, with which a trace of ashes and from 5 to 8 per cent granulated slag are mixed. Ordinary castings are annealed 60 hours, but it has been found more satisfactory to anneal light work for 72 hours under a slow heat. The slag is granulated in a motor-driven cinder mill, 36 inches in diameter and 56 inches long, which also recovers the iron that is carried over.

Cleaning Equipment.

The cleaning room, 60 x 70 feet in size, is located in front of the annealing room and is equipped with eight 28 x 42-inch tumblers driven by a single motor, as shown in Fig. 6. Each tumbler is equipped with a throw-out clutch, so that any machine may be disconnected at will. The dust discharge pipes rise vertically and connect with a main overhead pipe which leads to an exhaust fan operating at 1,325 revolutions per minute. After leaving the fan, the dust is discharged into a steel bin fitted with chutes at the bottom so its contents may be dropped directly into a car or wagon and hauled away. The exhaust system operates under a 3-ounce vacuum.

The pattern shop is located at the north end of the main building and is equipped with the necessary tools for making wood and metal patterns and for the manufacture of flasks.

A Westinghouse 250-horsepower, vertical, compound engine belted to an Allis-Chalmers 200-kilowatt, 250-volt, direct current generator furnishes all the power and light used in the plant. Steam is supplied by two return tubular boilers built by the Milwaukee Boiler Co., Milwaukee. As previously described, the power plant is in a separate building south of the annealing room.

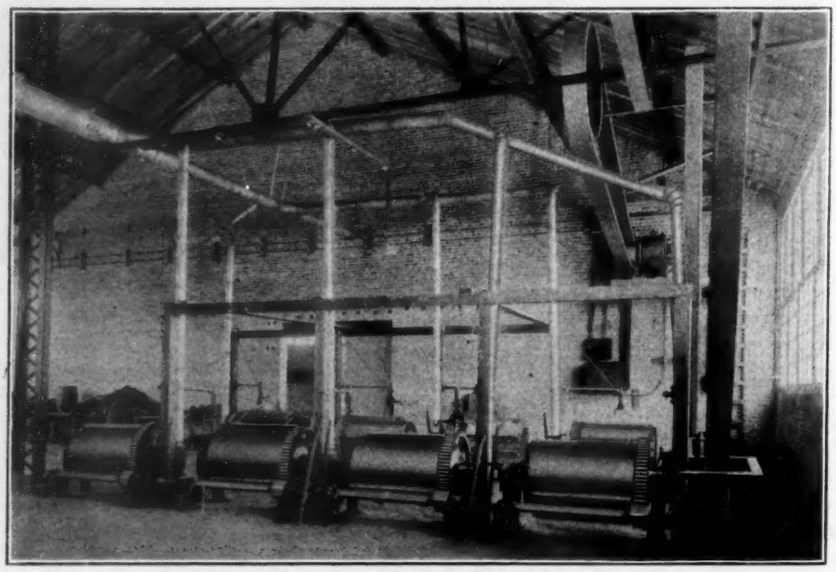


FIG. 6—THE CLEANING ROOM, SHOWING THE MOTOR-DRIVEN TUMBLING MILLS

In the organization of the shop, the straight piecework system of labor payment has been adopted as far as possible. All molding is done on a piecework basis, and this system is also extended to include charging and firing the air furnaces, shaking-out molds, cleaning, chipping and packing.

E. J. Meisenheimer is president of the Prescott Malleable Iron Co.; Fred M. Prescott is vice president; C. S. Prescott, manager, and J. P. Pero Jr., superintendent.

The Illinois Steel Co., Chicago, is about to erect a one-story, concrete office building at Eighty-ninth street and Strand avenue, that city.

Russian Iron Ore

The mining of coal and ore and the production of iron in South Russia have increased rapidly in recent years. In 1870 the output of coal was 251,600 tons; iron ore, 21,400 tons; pig iron, 8,000 tons, and the production of finished iron and steel, 11,400 tons. The coal production in 1909 was increased to 17,572,600 tons; iron ore, 3,700,000 tons; pig iron, 1,982,000 tons, and finished iron and steel, 1,435,000 tons. In 1910 there was a further large increase, and the bulk of the ore was used by works in South Russia, 934,000 tons having been exported. In the Krivoirog district there are at present 86 iron mines of which only 36 are being worked. Their output in 1909 was 3,547,000 tons. This production could be easily doubled if there was a ready market for the sale of a larger tonnage. However, the consumption of iron ore by Russian works has increased slowly, and the exports remain limited.

Improved Open-Hearth Furnace

A change in the construction of regenerative furnaces that does away with the narrow division wall between the air and gas ports was recently described in *Stahl und Eisen*. The flues carrying the gases from the chambers to the furnace ports are led up separately on the outside of the furnace. The gas is admitted to the hearth of the furnace in a nearly horizontal stream, while the air is brought down vertically through ports in the roof of the furnace. A 17-ton furnace constructed in this way ran 630 heats before being shut down for repairs. The new style gas and air flues in a 40-ton furnace lasted from 1,500 to 1,800 heats. The ports averaged 280 to 330 heats before requiring repairs, and the roof after running that time, was in 50 per cent better condition than that of a similar furnace provided with the old style ports.

The pump house of the plant of the Atlantic Creosoting & Wood Preserving Works, Norfolk, Va., was recently destroyed by fire and as a result the entire plant went out of commission. Three days after the order was placed for the pump house equipment the Blake & Knowles Steam Pump Works, 115 Broadway, New York City, shipped a carload of machinery to the Atlantic Creosoting & Wood Preserving Works which consisted of vacuum, pressure and tank pumps for handling creosote oil and also a large air compressor.

Chemical and Physical Properties of Pig Iron[1]

The Independence of the Quality of Pig Iron of Chemical Composition — Interesting Comparisons and Tests

By John Jermain Porter

It is perhaps not too much to say that the adoption of chemistry by the foundry has been responsible for a large part of the amazing advance of this industry during the past decade. Within this period, mixing by analysis has become the rule rather than the exception, and so much data has been published, and is now available along this line that further discussion seems superfluous.

There is, however, a related point in connection with the selection of pig iron for the mixture which has thus far received scant attention, but which is, in my opinion, worthy of most earnest consideration by foundrymen, and perhaps even more so by iron merchants and manufacturers. I refer to the great difference which exists in the behavior of many brands of pig iron and which apparently cannot be accounted for on the basis of chemical composition, as ordinarily determined.

In former days, now happily past, the old time founder, innocent of chemistry, swore by brands and possessed as part of his stock in trade a list of such, as had proved in his experience satisfactory and unsatisfactory. To the chemist this was ridiculous. From his standpoint, two irons having the same composition must have the same properties and give the same results, irrespective of brand name or anything else, and so earnestly has this doctrine been preached that his theory has won very general acceptance.

It is far from my intention to belittle the value of chemistry in the foundry or to deny the utility of analysis as a means of judging of the quality and fitness of an iron. Nevertheless I must take exception to the view still held by many chemists that analysis is *everything*, and maintain that there is something to be said for the arbitrary preferences of the older generation of founders. I believe it to be the case that there are many irons which have practically identical analyses and yet show marked differences in such important properties as strength and shrinkage, and I will now offer what evidence I have to support my views on this point.

Perhaps the most convincing evidence which has come to my notice is contained in a paper entitled "An Introduction to the Effect of Structure Upon the Physical Properties of Cast Iron", presented by F. J. Cook and G. Hailstone before the British Foundrymen's Association in 1909. In this paper it is recorded that of two mixtures practically identical in chemical composition the one was invariably much lower in tensile strength than the other, and this difference persisted through a great many heats and over a long period of time. The poorer mixture averaged about one-half of the strength of the better mixture, and in none of the 60 cases given is the strongest bar of the poor iron equal to the weakest bar of the good iron. The following analyses and tests are given as typical of the series, and in view of the exceedingly close agreement of these analyses it is evident that we must look elsewhere for the cause of the very great difference in strength:

	SERIES A	SERIES B
Tensile strength, tons per sq. in.	9.1	18.3
Total carbon, per cent	3.250	3.092
Graphitic carbon, per cent	2.397	2.289
Combined carbon, per cent	0.853	0.903
Silicon, per cent	1.328	1.314
Sulphur, per cent	0.095	0.101
Phosphorus, per cent	0.923	0.909
Manganese, per cent	0.290	0.335
Iron, by difference, per cent	94.114	94.149

A few years ago I was called into consultation by a certain foundry regarding a persistent case of trouble with shrink holes in small, chunky castings. It had been found by the foundry superintendent that the extent of the trouble apparently bore some relation to the mixture used, and hence experiments were carried out to determine what constituent or constituents were responsible for the difficulty. I am not at liberty to give full details of the results of these tests, but will present an outline of the experiments.

Experiments.

There were six brands of pig on the yard at the time, representing both northern and southern irons. Each of these irons was melted separately by using it alone in the first charge and separating the rest of the day's heat by a blank of coke. Working in this way, some 20 of the small castings, which had given the greatest trouble, were poured from each kind of iron. All conditions were kept as uniform as possible and the experiments were repeated several times with different lots of the various irons to minimize the danger of accidental interference of other factors. Finally, the castings were examined for shrinkage cavities with the followings results:

Brand No. 1.—Castings all good, not a shrink hole in the lot.

Brand No. 2.—Fifty per cent perfect castings and 50 per cent with small trace of shrinkage.

Brand No. 3.—Ten per cent perfect castings and 90 per cent with small trace of shrinkage.

Brand No. 4.—None perfect, all showed a little shrinkage.

Brand No. 5.—All castings with small shrinkage cavities.

Brand No. 6.—All castings very bad, with large shrink holes.

All of these irons were the ordinary No. 2 and No. 3 foundry grades, and while there were some variations in the analyses, there is absolutely no traceable connection between the percentage of any element or combination of elements and the results as to shrinkage. Moreover, the irons were each completely analyzed by a competent chemist and it was determined that the differences in behavior could not be attributed to the presence of any unusual elements, or to unusual variations in the proportions of the carbons. Since these original experiments were carried out, others have been made on various mixtures of these brands, and it has been shown that the behavior of any mixture is approximately proportional to the behavior of its constituents, so that with equal parts of No. 1 and No. 6, most of the castings will show just a little shrinkage. It has also been found that the result from these irons affects the shrinkage in much the same way as the original pig.

It is quite well known among both foundrymen and blast furnace men that pig iron, made in whole or in part from mill cinder, is less desirable than that made entirely from ore, although the use of the mill cinder will not, as a rule, change materially the composition of the pig. The points of inferiority of cinder pig do not seem to be very clearly defined and have probably never been scientifically investigated. Nevertheless, they are real enough to affect its sales value, and in England are recognized by the creation of the grades of cinder pig as opposed to all mine pig. I have had some experience in the use of mill cinder in the blast furnace and have noticed that when using a considerable proportion of it,

[1]Presented at the November meeting of the Pittsburgh Foundrymen's Association.

the iron was noticeably easier to break on the blocks, and there was invariably a decided increase in the unreduced iron in the slag.

Again, we have the case of charcoal iron, which in spite of the threats of foundry chemists to drive it from the field, is still produced in this country to the extent of some 400,000 tons per year, and is still regarded as indispensable for many classes of work. As far as analysis goes, there is but little average difference and no essential difference between charcoal and coke iron. Charcoal iron averages lower in sulphur, but any coke furnace can, and often does produce iron with the sulphur down under 0.01 per cent, which is as good as is expected from charcoal iron. Again, charcoal iron averages somewhat lower in total carbon than most coke irons, but here again the difference is not universal and if we should judge by analysis only, many coke irons could easily pass as the product of the charcoal furnace.

Coming to the properties of the two materials, however, it is within the experience of almost every foundryman that there *is* a difference. This is perhaps most generally noticed in the matter of toughness or strength, which in charcoal iron is much greater, the grains having a tenacity which causes the iron to tear to a marked degree rather than breaking off short. It is also noticed, however, in the properties of shrinkage, tensile strength and depth and character of chill, and since there is such a difference in properties and such a similarity in composition, I think it safe to say that we have here a notable example of that elusive difference which escapes the arts of the chemist.

Finally, I might cite the experiences and opinions of many competent foundrymen who have found the facts to be as I have stated. One authority in particular, Dr. R. Moldenke, has repeatedly called attention to these conditions.

Although we may recognize the fact that differences in pig iron may exist, which cannot be accounted for by analysis, the explanation of these differences is another and a very difficult matter. It is true that, as in the case of steel, the methods of metallography furnish a clue, and under the microscope the structure of cast iron often shows remarkable variations. Cook, in the example first cited, found that his strong iron showed under the microscope a peculiar net work structure of the phosphide eutectic combined with much finer graphite than existed in the weak mixture. It is well known that charcoal iron is finer in grain than coke iron of similar composition and that this closer grain is an almost invariable accompaniment of strong iron. Hence, we may assume, that a part at least of the differences in pig iron is due to the variations in size, shape and arrangement of the graphite flakes. This is all right as far as it goes, but is only pushing the matter back one step and is not satisfactory as an ultimate explanation. In seeking the real explanation, five possible theories have suggested themselves, and these I will take up in order.

The Manner of Cooling.

It has been known for many years that the rate of cooling is an important factor in determining the percentage of combined carbon, and lately it has become appreciated that it may also affect iron in other ways than through the combined carbon. For example, Custer, in his work with permanent molds, has shown that graphite size may be controlled without change in ultimate composition by varying the rate of cooling through the solidifying range, and others have found that hardness and electrical properties may be varied through quite wide limits by controlling the rate of cooling through a much lower range and without appreciably affecting the carbons. In my opinion, this possibility is due to a change in the allotropic state of the iron which takes place at about 1,400 degrees Fahr., and which is not made evident by chemical analysis.

However, though granting that the manner of cooling may produce many important changes, I still cannot believe that this theory is competent to account for the examples previously given. In the case of both Cook's experiments and those coming within my own experience, rate and manner of cooling were as nearly similar as it was possible to make them, and the number of pieces tested was too great to permit of the possibility of a coincidence of accidental variations in this factor. Moreover, the persistences of the differences after the remelting of the irons cannot be explained on this basis.

Another theory which may possibly be thought by some to afford an explanation is the manner in which the elements of the pig iron are combined. There are six elements present in cast iron and some 12 or 15 constituents are possible through the different forms of combination of these elements. There is, however, nothing to indicate that there is anything in this theory, and even if we could account for it on this basis, there would still be the question why two brands of the same elementary composition should have their elements combined in such different ways as to produce different properties.

Recently, considerable attention has been given to the gaseous impurities of steel and it has been found that nitrogen is a rather common and a very detrimental impurity. May it not be the case that the presence of more or less of this element, which is not determined in the ordinary analysis, explains the differences which I have described? This appears a more likely explanation than any of those thus far cited. I do not, however, regard it as the right one, or at least the chief one. There is very little evidence either for or against it, but such as there is appears to be against it. The well known experiments of Braune seem to indicate that nitrogen is seldom or never an important factor in gray cast iron, although it may be sometimes in white or chilled iron; and Gayley has described some tests made on the nitrogen content of different classes of pig iron in which he found that there was apparently no relation whatever between the amount of nitrogen and the quality.

Perhaps the most generally accepted theory to account for otherwise unexplainable differences in cast iron is to assume the presence of variable amounts of oxygen in the metal. This theory is due more especially to Dr. Moldenke, who, in several papers, has cited considerable evidence in its support. Perhaps the most conclusive evidence is the actual isolation of magnetic oxide from samples of iron which have been badly burnt on the hearth of an air furnace and which are known to have had the characteristics commonly attributed to oxidized metal. This theory fits in well with all that is known regarding the relation between blast furnace practice and the properties of the iron made. For example, mill cinder is a particularly difficult material to reduce and it has a well marked detrimental effect on the quality of the pig iron produced. Still another example mentioned by Dr. Moldenke is the difference in quality between malleable Bessemer, made in a lightly blown furnace, and regular Bessemer, made in a furnace driven to the limit.

While accepting as probably substantially correct this last theory, I would suggest that possibly a modification of it may be still nearer the truth. It is generally assumed that the oxygen is present as dissolved oxide of iron, but it seems to me possible, if not probable, that it may be rather in the form of an oxy-sulphide of iron. This compound has been shown by Campbell to be capable of existing in iron and steel at high temperatures and to have remarkable powers of diffusing through the solid metal. Le Chatelier has also proven its existence.

The evidence as to its presence and influence in commercial iron and steel is only indirect, but there is some circumstantial evidence pointing in that direction. It is quite noticeable in blast

furnace practice that following a slip bringing unreduced ore into the hearth, there is a most evident association of badly oxidized iron and very high sulphur. It is also well known that it is particularly difficult to keep the sulphur down when smelting mill cinder.

In a paper by Herbert Pilkington, read before the British Foundrymen's Association in 1911, it is stated that many of the best cold blast charcoal irons contain 0.10 per cent sulphur and upwards, and that this quantity, which would be ruinous to ordinary pig, does not in this case produce unsoundness or other bad effects. Finally, I know of several observant foundrymen, who are quite certain that sulphur is sometimes much more injurious than at others, and this fact, if such it be, may or may not be caused by its association with variable amounts of oxygen in the form of oxy-sulphide.

Thus far my discussion has been largely academic and a more practical question is the relation between blast furnace practice and the presence in the pig iron of these injurious properties, however they may be caused. Unfortunately, we have not enough data to draw exact conclusions, or indeed, any conclusions. My observations have led me to accept as a tentative theory the rule that the less oxidizing the conditions under which the iron is made, the better will be its quality. In other words, satisfactory iron should be made from easily reducible ores, with a moderate rate of driving and with not too much economy of fuel. These conditions, if correct, are rather hard on the furnace man and it is to be hoped that further information may modify them somewhat. It is a significant fact, however, that in a large number of cases the irons having the highest reputation for low shrinkage and general good casting properties are made in small furnaces inadequately provided with blowing capacity and hence, lightly driven, and using brown hematite or other easily reducible ore.

I have thus far been unable to determine whether those factors in the operation of the furnace, which are within the control of the furnace manager, have any important effect upon these properties of pig iron, but it is probable that, to some extent, they have. It is a well known fact that the grain of the pigs may be varied within wide limits without regard to composition by varying the basicity of the slag and the temperature of the hearth. It is also well known, however, that upon remelting the character of the grain is changed and becomes normal and so far as I know, it has never been definitely shown that the size of the grain in the original pig bears any relation to the properties of the iron after remelting, at least none which cannot be explained on the basis of composition.

On the other hand, I have noticed certain indications which lead me to believe that it is possible to accomplish something by the way the furnace is handled. For example, it appears that the bad effects of mill cinder may be at least partially nullified by slow driving and the use of some excess of fuel. Again, magnetic ore appears to make a satisfactory foundry iron, although it is very hard to reduce, but furnaces using it are generally driven rather slowly. Reasoning entirely from theory it seems likely that the presence of ferrous silicate in the ore, the formation temperature of the slag (not the melting point), the temperature of the hearth and the freedom from slips may all have something to do with the quality of the iron. It would be interesting to follow up some of these points; for example, to compare the iron made by the use of dry blast with that made under otherwise similar conditions, but using moist blast. Dry blast greatly increases the hearth temperature, thus producing conditions identically opposite those under which cold blast charcoal iron is made; yet it is quite possible that it may produce an effect of the same kind on the pig, although less in degree.

The practical application of the facts which I have here tried to bring out may not seem to be of any great importance, but I am not so sure that this is the case. Sometime ago I had a talk with a foundry superintendent of wide experience, and in discussing the experiments on fluid shrinkage, previously described, he insisted that to many foundries this property is one of the most important and difficult problems and is responsible for a much larger number of defects than is generally supposed. According to this foundryman, the question of the influence of brands upon this property is well worth the study of the practical foundryman. There are, of course, many foundries where neither fluid shrinkage nor high strength are of any particular importance, but on the other hand, there are some classes of work where one or both of these properties is of very great importance, and in such cases it appears to me that a knowledge of brand characteristics is almost indispensable.

As there is no published and very little privately held information along these lines, it is necessary for each founder to gather his own data, and the procedure which I recommend is as follows:

First.—A fluid shrinkage and transverse strength test from each heat.

Second.—A continuous record of the results of these tests and the mixtures used.

Third.—Occasional tests of the different brands melted separately.

In regard to the test for fluid shrinkage, I have found that originally recommended by Cook and consisting of a casting in the shape of a K, with the legs about 1 inch square in section, to be very satisfactory. When this casting is broken at the junction of the legs, any tendency towards fluid shrinkage will be evident there. In using this test, it is convenient to construct a scale consisting of a series of from four to eight broken K castings of varying degrees of badness. These are mounted in a box and given suitable numbers. Thereafter it is sufficient to compare any test piece with this scale and to record its shrinkage, the number on the scale most nearly resembling it.

It will be evident that the obtaining of this data need not be at all burdensome to the foundry undertaking it, since no special apparatus is called for, except a transverse testing machine, and the extra work involved will hardly amount to 20 minutes per day of a helper's time. Even the special tests of separate brands need not interfere with ordinary foundry routine, since they can be run as the first charge in a regular heat.

Another conclusion which might be drawn from the facts brought out is that there is a great opportunity for some of the manufacturers and sellers of foundry pig iron to make strong selling points of these special virtues, once they have found them in their brands. I am quite convinced that the larger commission firms would find it very much to their advantage to have the properties of the brands they handle thoroughly tested so that they could sell them more intelligently.

Finally, it appears to me that the recognition of the injurious effects of the gaseous impurities in cast iron will give a fresh argument to the electric furnace man. I have long thought that it should be practicable to use an electrically-heated receiving ladle or mixer in connection with either a blast furnace or cupola. Here the iron could be partially refined, treated with deoxidizing alloys, adjusted in composition and brought to any desired casting temperature; and since there would be no melting to do, the amount of electrical energy needed would be relatively small. Operated on a sufficiently large scale to take care of the fixed charges, it appears to me that this combination could be made profitable for some lines of work.

The Inland Steel Co. has declared the regular quarterly dividend of 1¾ per cent, payable Dec. 1.

IRON AND STEEL SECURITIES

The tone of the New York stock exchange was stronger last week and the heavy losses of the preceding week were regained.

The general list was firmer on Monday; January cotton went to the lowest price on the crop; wheat was firmer. Tuesday's market opened dull, but closed active, firm and higher; wheat was weak and cotton declined. Wednesday, the market was active and buoyant, prices advancing under the leadership of Steel common. Thursday, prices advanced to the highest of the week, but later reacted and lost most of the early gains; cotton declined. Friday, trading was less active, but net price changes were small; wheat was weak and lower; cotton rallied; foreign markets were dull and heavy. Saturday, trading was active and prices closed near the best of the week; cotton closed lower.

Money on call ranged between 2¼ and 3 per cent. Time money was dull in spite of large offerings. The actual condition of clearing house institutions showed loans increased $10,025,000; net deposits decreased, $1,487,000; total reserve, $416,805,000; excess of reserve, $11,532,950, a decrease of $8,120,950. Non-member banks and trust companies showed loans decreased, $310,500; net deposits decreased, $3,117,800; reserve on deposit, decreased $1,683,000; and the percentage of reserve, 18.7, against 18.9 the week previous. Fortnightly railroad statistics showed a decrease of $15,365 in the idle car surplus, the total thus being brought to the smallest figure this year. Bank clearings showed an increase over last week, but a slight decrease from last year. Commercial failures numbered 245, compared with 268 the previous week and 258 the corresponding week last year. Shares were sold to the number of 3,747,700, compared with 2,859,600 the preceding week and 2,519,600 the corresponding week last year. Bonds, exclusive of government bonds, were sold to the amount of $20,495,000, compared with $15,559,000 the preceding week and $10,619,000 the corresponding week last year.

	Closing Quo. Nov. 4	Changes in week	Annual Meeting date 1911		Stock Outstanding	Basis.	Dividend Last Dividend	Date Last Div. Pay
Allis-Chalmers	3	.....			$19,820,000		.....	.....
Allis-Chalmers, pr	10¾	+ ¾	Nov.	2	16,150,000	7 cum.	1¾ Q.	Feb., 1904
American Can	11	+1	Feb.	1	41,233,300		1¾ Q.	.....
American Can, pr	88¼	+3¾			41,233,300	7 cum.	1¾ Q.	Oct., 1911
Am. Car & Fdy	50	+3	June	29	30,000,000		½ Q.	Oct., 1911
Am. Car & Fdy., pr	115	+1			30,000,000	n. c.	1¾ Q.	Oct., 1911
American Loc	35	+2½	Oct.	17	25,000,000	5	1¾ Q.	Aug., 1908
Am. Loc., pr	103	.....			25,000,000	7 cum.	1¾ Q.	Oct., 1911
American Ship	49⅞	.....	Oct.	11	7,600,000	4	2 Q.**	June, 1911
American Ship, pr	106½	.....			7,900,000	7 cum.	1¾ Q.	Oct., 1911
Am. Steel Foundries	31	+3	Dec.	7	17,184,000		1 Q.	May, 1911
Barney & Smith	15	.....	June	6	2,000,000	4	1 Q.	Dec., 1907
Barney & Smith, pr	70	.....			2,500,000	8 cum.	2 Q.	Sept., 1911
Bethlehem Steel	29⅞	+1⅛	April	4	14,862,000		.....	.....
Bethlehem Steel, pr	57⅜	+1⅜			14,908,000	7 n. c.	¾ Q.	Feb., 1907
Cambria Steel	43¾	+ ¼	Mar.	21	45,000,000	5	1¼ Q.	Nov., 1911
Cambria Iron	44	.....			8,468,000*	4	2 S. A.	Oct., 1911
Chicago Pneumatic Tool	46¼	+1¾	Feb.	20	6,485,800	4	1 Q.	Oct., 1911
Colorado Fuel	26¾	+1¼	Oct.	16	34,235,500		1¾ Q.	Apr., 1902
Crucible Steel	105⅜	+ ⅜	Oct.	18	24,578,400		3½ Q.	.....
Crucible Steel, pr	75⅜	+1⅜			24,463,500	7 cum.	1¾ Q.	Sept., 1911
Empire Steel	6	+1	Feb.	22	1,254,770		.....	.....
Empire Steel, pr	40	—10			2,500,000	6 cum.	1 S. A.	July, 1911
Fay & Egan	70	.....	Feb.	21	1,000,000	6 cum.	3 S. A.	Feb., 1911
Fay & Egan, pr	110	.....			1,000,000	7 cum.	1¾ Q.	Aug., 1911
General Electric	151½	+4¼	May	9	65,179,600	8	2 Q.	Oct., 1911
Harbison-Walker	45	.....	Jan.	16	18,000,000		½ Q.	Sept., 1911
Harbison-Walker, pr	96¼	— ¾			9,600,000	6 cum.	1½ Q.	Oct., 1911
International Pump	28⅝	+2⅝	Dec.	12	17,762,500		1 Q.	Nov., 1910
International Pump, pr	82	+ ½			11,350,000	6 cum.	1½ Q.	Nov., 1911
Lackawanna Steel	30	.....	Mar.	4	34,978,000		.....	.....
Lake Sup. Corp	28¼	+ ¾	Oct.	4	40,000,000		.....	.....
New York Air Brake	50	+3½	Mar.	8	10,000,000	6	1½ Q.	July, 1911
Niles-Bement-Pond	94	.....	Feb.	8	8,500,000	6	1½ Q.	Sept., 1911
Niles-Bement-Pond, pr	104	.....			2,000,000	6 cum.	1½ Q.	Aug., 1911
Otis Elevator Co	68	.....	Mar.	20	6,375,000	1	1 Q.	Oct., 1911
Otis Elevator Co., pr	95	.....			6,310,000	6 n. c.	1½ Q.	Oct., 1911
Pa. Steel	60	.....	May	8	10,750,000		.....	.....
Pa. Steel, pr	103	.....			16,500,000	7 n. c.	3½ S. A.	Nov., 1911
Pittsburgh Coal	17¾	+ ¼	Feb.	10	28,104,600		.....	.....
Pittsburgh Coal, pr	81	+2½			27,071,800	7 cum.	1¼ Q.	Oct., 1911
Pressed Steel Car	31	+2⅝	Feb.	15	12,500,000		1 Q.	Aug., 1904
Pressed Steel Car, pr	95⅛	.....			12,500,000	7 n. c.	1¾ Q.	Nov., 1911
Pullman	157½	+1½	Nov.	8	120,000,000	8	2 Q.	Nov., 1911
Railway Stl. Spring	29⅜	+3⅜	Mar.	2	13,500,000	2	1 S. A.	Oct., 1908
Railway Stl. Spring, pr	100	+2¾			13,500,000	7 cum.	1¾ Q.	June, 1911
Rep. Iron & Steel	21	+2	Oct.	18	27,191,000		.....	.....
Rep. Iron & Steel, pr	79⅜	+3⅛			25,000,000	7 cum.	1¾ Q.	Oct., 1911
Sloss-Sheffield	42	+4	Mar.	15	10,000,000	5	1¼ Q.	Sept., 1910
Sloss-Sheffield, pr	112	.....			6,700,000	7 n. c.	1¾ Q.	Oct., 1911
U. S. Pipe & Fdy. Co	13¾	.....	June	28	12,106,300		1 Q.	Dec., 1910
U. S. Pipe & Fdy. Co., pr	42¼	+ ¼			12,106,300	2	1¼ Q.	June, 1911
U. S. Steel	59⅜	+6⅜	April	17	508,302,500	5	1¼ Q.	Dec., 1911
U. S. Steel, pr	109¾	+5⅜			360,281,100	7 cum.	1¾ Q.	Nov., 1911
U. S. Steel 5s	101¾	+1			463,798,000	5	.....	.....
Va. Iron, Coal & Coke	60	.....	Sept.	19	9,073,680		5. †	Oct., 1907
Westinghouse Electric	64⅝	+1⅜	July	26	3,998,700*		1¾ Q.	Oct., 1911
Westinghouse Air Brake	148¼	+3¼	Oct.	3	13,750,000*		5 Q. ‡	Oct., 1911

Par value of shares, $100, except those starred (*), $50.
**Includes last 1 per cent payment of 4 per cent extra.
†Stock.
‡Includes 2½ regular, 1½ extra and 1 special.

Copper Stocks.

New York.—Amalgamated copper closed 55, a net gain of 2¾.

Boston.—Butte Coalition closed 17, a net gain of 1; Calumet & Arizona closed 49½, a net gain of 1½; Calumet & Hecla closed 380, a net gain of 5; North Butte Mining closed 25, a net gain of 1; Quincy Mining closed 59, no change.

Financial Notes.

The Canadian Car & Foundry Co. has declared a dividend of 4 per cent for the year ending Sept. 30, payable Dec. 15. This is an increase of 2 per cent over last year's declaration.

The Pittsburgh Valve, Foundry & Construction Co. has declared quarterly dividends of 1½ per cent each on preferred and common stocks.

The Pittsburgh Steel Co. has declared the regular quarterly dividend of 1¾ per cent on preferred stock, payable Dec. 1.

Fairbanks, Morse & Co. have completed the installation of motors and other equipment in the plant of the Crystal-Standard Laundry Co., Louisville.

PICTURES SHOW

Steel Makers Phases of Welfare Work About Mills.

An interesting innovation in the promotion of the welfare work in the iron and steel plants of the country under the auspicies of the American Iron and Steel Institute was furnished at the regular meeting of the directors of the institute at New York, Oct. 26, when an illustrated address covering one phase of the general subject was presented. In this case Dr. Thomas Darlington, secretary of the welfare committee of the institute, addressed the directors on the subject of milk supply and showed views taken in different steel mill towns which disclosed conditions that were both below and up to the proper standard.

Dr. Darlington in his remarks said that conditions in the homes of the workmen had a strong relation to his own health and efficiency and that to some extent it was incumbent upon the large manufacturers to be concerned in making his surroundings as pleasant and as sanitary as possible. He stated that the higher mortality rate in the homes of the employes of the steel mills was found chiefly among the infants, and that the conditions of milk supply in many cases were responsible for many of these instances. He showed specific cases where the problem was being successfully met by steel makers and among others cited the fine herd of cows and the dairy now being conducted for its employes by the Maryland Steel Co., Sparrow's Point, Md., under the personal direction of President F. W. Wood. The controlling aims in this undertaking by the Maryland Steel Co. have been to fix a proper standard of quality and a reasonable price and Dr. Darlington stated these purposes are being served in an admirable manner. Plans are now being prepared by the steel company for the expenditure of a considerable sum in the erection of modern and sanitary stables for the cattle.

It is the plan of the welfare department of the Institute to present illustrated addresses on different phases of the work at each monthly meeting of the board of directors.

Name Changed

The Marion Shovel & Dredge Co., Marion, O., has changed its name to the Marion-Osgood Co., this having been brought about by the purchase of Osgood Dredge Co., of Albany, N. Y., by the Marion company. There has been no increase in the capital stock and the buildings of the Osgood company have no connection with the deal, as only the patterns, patents, drawings, details, office furniture, engineering equipment and good will were purchased.

Hardware Manufacturers to Hold Convention

The twenty-first annual convention of the American Hardware Manufacturers' Association will be held at Atlantic City, Nov. 15, 16 and 17. The opening day's deliberations will be devoted to routine business, including the president's address, reports of officers and committees and the appointment of convention committees. A card party will be given at the Hotel Dennis in the evening. Thursday's sessions include the presentation of the following addresses: "Canada, the Manufacturer's Opportunity," by Hon. J. G. Henderson, commissioner of industries, Hamilton, Ont.; "Legislation Pending Before Congress Affecting the Patent System," by Arthur Steuart, Esq., Baltimore, Md.; "Our European Competitors and some American Trade Opportunities in European Countries," by Henry Studniczka, St. Louis, Mo., and "Some Observations of a Hardware Man in Europe, on Parcels Post, the Cost of Distribution of Goods, and the Tariff," by S. Norvell, president and treasurer, the *Hardware Reporter*, St. Louis, Mo. A smoker and vaudeville will be given in the evening at the Savoy theater. Friday's meetings will be executive and will conclude the convention. A dance at the Hotel Dennis is programmed for the evening.

Explore Ore Lands

The United States Steel Corporation will soon begin exploratory work between Aurora and Mesabi, at the eastern end of the Mesabi range in Minnesota. Between 40 and 50 drills will be used and about 200 men will be employed in carrying out the work. The Steel Corporation has also decided to explore a tract six miles southeast of Gwinn, in the Swanzy district of the Marquette range in Michigan, and has awarded the contract for the work to the Duluth Diamond Co.

The Atlantic Foundry Co., Akron, O., has increased its capital from $10,000 to $60,000.

MERCHANT MARINE

Will Be Actively Urged by New Organization.—The Officers.

A permanent national organization to advocate the improvement of the ocean mail service and the upbuilding of an American merchant marine was formed at a special meeting of the Merchant Marine Committee of One Hundred held at the Waldorf Astoria, New York City, Nov. 2. The new organization will carry on the work along broader lines, and will more aggressively carry to the American people the patriotic policies for which it stands. John H. Hanan, the shoe manufacturer, was elected president of the new organization, C. D. Durkee, treasurer, and Jas. L. Ewell, secretary.

At the meeting the following resolution was passed:

Resolved, that we, in meeting assembled, form a permanent National Merchant Marine Association, whose objects shall be: To promote, encourage, restore and advance the supremacy of the flag of the United States of America upon the merchant shipping of the world, and to provide proper inducements, encouragement and protections to users and owners of vessels built in our country; to promote American commercial interests throughout the world and to encourage, aid, assist and pursue through all proper methods, for the establishment and maintenance of an American merchant marine, and to reform abuses and acts detrimental to the same; to promote and better export relations; to promote and encourage the development and maintenance of suitable waterways, and terminal and dock facilities for the passage, reception and handling of vessels; to take active part in formulating laws affecting the aforesaid objects and to secure favorable legislation therefor; to provide lectures, addresses, meetings, conferences and literature for furthering the objects of the association; to secure the aid of the congress of the United States of America, state legislatures, boards of trade, chambers of commerce, industrial organizations, civic bodies, individuals and other channels for the advancement and accomplishment of the objects of the association; and to do any and all things for the good and welfare of the association and its members, and the carrying out of the objects therein and hereby contemplated, not contrary to law.

The directors follow: John H. Hanan, C. D. Durkee, J. L. Ewell, Chas. F. Wiebusch, John H. Fisher, J. F. Coffin, Geo. W. Gittins, Geo. R. Burrows, H. C. Laudenbaugh, Andrew J. McIntosh, Fred A. Wuzbach and E. C. Bennett. The first meeting of the new organization will be held late in January.

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THE AVERAGE PAID CIRCULATION OF THE IRON TRADE REVIEW FOR THE ISSUES OF THE FOLLOWING MONTHS WAS:

January, 1911	6,058
February	6,072
March	6,091
April	6,108
May	6,112
June	6,124
July	6,138
August	6,152
September	6,161
October	6,172

November 9, 1911

Approach of Bottom in Steel Prices

A few definite signs have been appearing lately that some steel prices have reached bottom or closely have approached that mysterious line which is never positively discernible until it can be seen in the retrospect. The sheet market in particular has shown signs of a stability which had formerly been lacking. It is at least a month since prices were made than which the present ruling figures are certainly no lower, although it would probably be inaccurate to say that they are measurably higher, except perhaps as to galvanized sheets; and in this branch of the sheet market, as pointed out recently, an advance in the finished products would only be a compensation for an advance in the raw material, which advance the majority of the sheet mills actually have to pay.

In the case of sheets, the comfort in reaching bottom, if bottom has been reached, is only that foundation is laid for an advance, for there is no question that the present prices are wholly unprofitable. They are the lowest prices ever named, and thus sheets stand apart from most finished steel products, for most other finished products, if selling at relatively the lowest prices on record, are not selling at absolutely the lowest. Extremely low prices were made in 1897 and 1898, when manufacturing conditions were vastly different from the present, and various fundamental items of cost, particularly wage rates, were much lower than now. The present sheet market, on the other hand, is lower than the level of 1897 and 1898.

From many quarters has come testimony that current prices in the sheet market are below the actual cost of production, and wonder has been expressed how the mills have been able to make them. These statements have lately been followed by rumors that several mills have decided to withdraw from the keenest of the competition and be content with less tonnage, or none at all, in preference to accepting the prices which have been current.

In some other steel products, dissatisfaction with going prices has so increased that mills are contemplating withdrawal from the market rather than following it if it chooses to go lower. While such a spirit is far from universal, it is apparent in some quarters, and its appearance may prove to be indicative of the course of the market in the next few months. The possibility has been before the trade of a relentless price war, in which the extent to which prices would fall would be gaged not by the cost of production but by the resources of the sellers—by their reserves in working capital or borrowing capacity. This has been a possiblity, although not necessarily a probability. As noted, evidences have been appearing lately that mills will set a more moderate pace, and will withdraw from the competition when their costs are approached rather than when their resources are exhausted. On all hands the opinion is expressed that the bringing of the government suit against the United States Steel Corporation forestalls any definite improvement in the market for some time, at least such an improvement as might have come through the institution of a buying movement for the replenishment of stocks in the hands of jobbers and such manufacturing consumers as have normally carried a fairly large stock of one or other of the finished products of the steel trade. In these circumstances the question of where prices will go under conditions of buying such as have prevailed in the past few weeks becomes very important.

It is important to observe that the present tonnage of steel business is very large. The dissatisfaction is with prices, and with the fact that there is any gap at all between demand and productive capacity. This gap, it should be emphasized, is relatively not large. The steel industry as a whole has been operating at between 70 and 75 per cent of its full capacity, and the estimate of full capacity is one based upon fairly remunerative prices. There is capacity now idle which would not be productive unless prices were materially higher, and this applies not only to the independents but also to a certain extent to the Steel Corporation. The Corporation has a few minor plants which do not produce nearly as economically as its best plants, and at present prices it would probably elect not to operate them even were prices somewhat higher than they are. Accordingly, it is not necessary, when 70 or 75 per cent of the full capacity is in operation, that 25 or 30 per cent of the capacity should be taken completely out of the market situation, either by destructive competition or by a voluntary withdrawal. Possibly the withdrawal of 10 or 15 per cent of the capacity, particularly if it were known that it was withdrawn voluntarily, simply through prices being

unsatisfactory, and not through actual inability of the owners to continue in the competition, would be sufficient to right the situation to such an extent as to create a steady and firm market.

Milk and Steel

At first glance it is difficult to see where milk and steel have much in common. Both enter into the sphere of life's necessaries, one for man's bodily sustenance and the other for his comfort and advancement in the scheme of the world's progress. There the relationship apparently ends.

The systematic effort aimed at the improvement of the working and living conditions about the steel mills has, however, brought the question of milk supply before the steel makers of the country. Based upon the premises that the conditions of living and home life directly affect the health and efficiency of the workman, the question of milk supply rises to a factor of greater economic importance. The welfare committee of the American Iron and Steel Institute has recently been giving this subject considerable attention and intimate investigation. This inquiry has led to personal investigation in different mill towns of the country. Dr. Thomas Darlington, secretary of the welfare committee of the institute, in an illustrated address recently delivered before the directors, impressed upon these steel makers their responsibilities toward their employes in this matter and with the possibilities for good. His observations, he stated, had disclosed that the highest rate of mortality in the mill towns was among infants, suggesting strongly the presence of unwholesome conditions of milk supply.

Some steel makers have already seriously taken up the work of safeguarding the health of their employes and families upon this side. A notable case is that of the Maryland Steel Co., Sparrows Point, Md., which is maintaining a herd of cows and has established a modern dairy for the purpose of fixing a safe standard of quality and a reasonableness of price. Under the personal attention of its president, this unique enterprise in the steel industry is carrying out its purposes in a highly successful fashion and plans are in view for further development.

One cannot but be impressed with the sincerity of purpose and the wholesoulness of effort being made to promote their laudable aims by those in direct charge of the work undertaken to improve the living and working conditions about the steel mills of this country.

Referring to the article describing the continuous foundry of French & Hecht, Davenport, Ia., published in THE IRON TRADE REVIEW, Oct. 26, we are advised by J. L. Hecht, that it was an error to say the new foundry was designed and built under his supervision. Emil Einfeldt did this work and is entitled to the credit.

Will Look Into Steel Labor Conditions

In pursuance of a resolution adopted at the last annual meeting of the United States Steel Corporation, a committee of five has been appointed to investigate labor conditions prevailing in the steel industry of the country. This committee is composed of Stuyvesant Fish, formerly president of the Illinois Central railroad, as chairman; T. DeWitt Cuyler, a director of the Atchison, Pennsylvania and New Haven railroads; Darius Miller, president of the Burlington & Quincy railroad; Chas. L. Taylor, a retired steel manufacturer, of Pittsburgh, and Chas. A. Painter, a banker of Pittsburgh. The committee plans to go to work at once and will hold meetings in both New York and Pittsburgh. The selection of the committee was delayed because some of the men who had been asked to serve by Judge Gary were unable to do so. Recently Chas. M. Cabot, of Boston, the stockholder who was responsible for the introduction of the original resolution, protested against the delay and Judge Gary assured him that the investigation would be taken up as soon as he could get a committee together.

Smith, Hinchman & Grylls, Detroit, are preparing plans for a new power house for the University of Michigan, at Ann Arbor, Mich.

GAGE NAME CHANGED

By Leading Wire Makers at Instance of Government Bureau.

The American Steel & Wire Co. has issued notice to the trade of a change in the nomenclature of wire gages, which it has made in accordance with a suggestion from the bureau of standards at Washington, to all wire manufacturers. The wire gage for which sizes were shown previously in the company's publications under the title of "American Steel & Wire Co.'s gage," was the same as the Washburn & Moen gage, the same as that used by practically all American manufacturers, although-under different names. Upon the recommendation of the government's bureau of standards a number of the principal wire manufacturers and leading consumers have agreed that it will be well to designate this gage as the "Steel Wire gage;" in cases where it may be necessary to distinguish it from the British standard wire gage it may be called the "United States Steel Wire gage," for while the name thus adopted has official sanction, yet it has no legal effect.

The only wire gage which has been recognized in acts of congress is the Birmingham gage, the treasury department using this for years in connection with wire imports. It will continue to do so until the tariff acts are amended, but the standard will likely be abandoned some time in the future, since it is radically defective and almost obsolete both in Great Britain, where it originated, and in the United States.

In the case of copper wire, and other wires, the gage universally recognized in the United States is the "American Wire gage," also known as the Brown & Sharpe. Confusion need not arise over these names, Steel Wire gage and American Wire gage, since the fields covered by the two gages are distinct and definite.

Cadmium Production.—The production of cadmium in this country is limited to two firms, according to a report by the United States Geological Survey. These are the Grasselli Chemical Co., which commenced the recovery of cadmium in 1907, and the American Smelting & Refining Co., which recovered a few hundred pounds in 1910.

The American Locomotive Co., New York, has purchased a large block of ground on Jackson avenue in Queensboro, Long Island City.

INCREASE STOCKS

Of the Bucyrus Co. to $10,000,000—New Shop Being Built at Evansville.

The Bucyrus Co., South Milwaukee, Wis., has just completed a plan of recapitalization, whereby the capital stock will be increased from $1,000,000, to $10,000,000, and through which strong banking interests in New York and Philadelphia will become allied with the company. This had been brought about by the increasing business of the Bucyrus company and the fact that it is erecting a new shop at Evansville, Ind., the site of which will comprise 70 acres. The new officers of the company are as follows: Chairman of the board of directors, H. P. Eells; president, Wm. W. Coleman; vice president, E. K. Swigart; secretary, G. A. Norrison, and treasurer, Daniel P. Eells. The directors consist of the following: H. P. Eells, O. H. Cutler, W. H. Marshall, A. H. Lockett, William W. Coleman, D. E. Pomeroy, E. K. Swigart, G. W. McGarrah, H. H. Dean, G. F Steadman, J. B. Terbell and Daniel P. Eells.

Will Entertain Jobbers

Members of the National Hardware Jobbers Association are to be entertained with a tour of the city of Philadelphia on Nov. 14 by a group of five manufacturers, including Henry Disston & Sons, Inc., the Enterprise Mfg. Co., of Pennsylvania, the Miller Lock Co., North Bros. Mfg. Co. and Fayette R. Plumb, Inc. The members of the association, who will be en route by special train from Chicago to their annual convention at Atlantic City, will be met at Philadelphia and will be taken on an automobile trip to the principal points of interest in the city and then to the Huntington Valley Country Club, where appropriate entertainment will be provided. After the day's sight-seeing, the jobbers will proceed to their convention at Atlantic City.

New York Subway Award

The public service commission of New York has awarded section 13 of the new Broadway-Lexington avenue subway line to the Bradley Constructing Co. at its bid of $4,071,416. This section extends from 118th to 129th street and calls for about 9,500 tons of structural material. The Bradley Constructing Co. has secured five of the eight sections of this subway already awarded, the other three contractors for single sections being the Oscar Daniells Co., of Chicago, the Metropolitan Contracting Co., of Boston, and the Hegerty-Drummond Co., of Philadelphia. The American Bridge Co. has received all the awards of structural steel thus far placed by these contractors.

Large Contract Received by Westinghouse

Pittsburgh, Nov. 7.—The Westinghouse Electric & Mfg. Co. has received, as sub-contractor through the John W. Danforth Co., Buffalo, a contract from the United States navy department for an additional electrical equipment for the central power plant at the Mare Island navy yard in California. This equipment includes six induction motors with a double equipment of 142½ horsepower both single and double speed motors for driving the circulating and condensing pumps in the power house. The contract also includes three 5-kilo-volt-ampere transformers for reducing the voltage of the generators for the motors; one 20-kilowatt motor driven exciter set, two 25-kilowatt turbo-generator exciter sets, one 19 panel station switchboard, and one distributing panel. The generator equipment for this station was purchased some time ago and includes one Westinghouse-Parsons 1,000-kilowatt 2,200 volt turbo-generator. The equipment is to comply with the specifications of the bureau of yards and docks of the navy department.

Fine Showing Made

The Robesonia Iron Co., Robesonia, Pa., which relighted its furnace on Oct. 12, advises that during the last period the furnace was in blast it made 127,345 tons of pig iron. This total, by sulphur content, was as follows:

	Tons.	Per cent.
Sulphur 0.020 and under.....	25,356	19.91
Sulphur 0.021 to 0.030.....	43,922	34.49
Sulphur 0.031 to 0.040.....	24,905	19.56
Sulphur 0.041 to 0.050.....	15,956	12.54
Sulphur 0.051 to 0.075.....	13,702	10.75
Sulphur 0.076 to 0.100.....	2,854	2.24
Sulphur 0.101 to 0.156.....	649	0.51
	127,345	100.00

To Change River

The Youngstown Sheet & Tube Co. and the Pennsylvania railroad are planning to change the course of the Mahoning river at East Youngstown, O., for the purpose of redeeming six or seven acres of lowlands, which will be used by the sheet and tube company as sites for extension.

BIG BRIDGE AWARDED

American Bridge Co. at New York is Largest in Years.

The award of the contract to the American Bridge Co. for the fabrication and erection of the steel work for the main structure and part of the approaches for the Hell Gate bridge, New York, represents final action upon a large construction enterprise that has been before the steel trade for several years.

This bridge, which will be one of the largest structures of its kind in the country, will span the Hell Gate rapids in the East river at the upper side of Manhattan Island. It will connect Long Island with the mainland and by means of it through passenger trains can be run from the south to New England by way of New York, without being ferried around Manhattan Island, as is necessary at the present time. These trains will cross to Manhattan Island under the Hudson river from the Jersey shore by way of the Pennsylvania tunnels, proceed under the East river by the Long Island railroad tunnels to Long Island, and from there run by way of the Hell Gate Bridge to the New York State mainland. The route of the bridge is from Scaly Rock on the Long Island Sound across Hell Gate to Ward's Island, then across Little Hell Gate and Randall's Island to its terminus in the Port Morris yards of the New York, New Haven & Hartford Railroad in the Bronx. Including the approaches, the bridge will be about three miles long and will represent a layout of about $5,000,000 in construction cost. The abutments are to be of granite and the towers of concrete. The bridge is to be erected by the New York Connecting Railroad, which has been organized by the Pennsylvania and New York, New Haven & Hartford Railroads, under whose auspices it will be operated.

Including the purchase of land, construction of railroad connections, terminals, etc., the total cost of the enterprise is roughly estimated at $25,000,000. The total steel requirements of the bridge are about 60,000 to 65,000 tons. The award to the American Bridge Co. calls for 36,000 tons, leaving about 30,000 tons for approaches yet to be placed.

The Western Conduit & Mfg. Co., Chicago, has increased its capital stock from $50,000 to $100,000 and the number of directors from three to five.

LIVE MACHINERY NEWS

In New York, machinery dealers and manufacturers report a somewhat heavier volume of business for October than for September and present indications point to a continuation of this improvement. An inquiry for some 50 machine tools, bids to be in on Nov. 4, was distributed on Oct. 28 by the New York, New Haven & Hartford Railroad Co. This list involves a total value of about $60,000. In addition, a large number of small inquiries has just been submitted to the New York trade. It is expected that the recent letting of the contract for the proposed Hell Gate bridge, New York City, will result in the placing of some good orders for contractors' equipment. In Pittsburgh, aside from the contracts involved in the proposed new open-hearth steel plant of the Youngstown Sheet & Tube Co., and the further awarding of contracts by the Pittsburgh Crucible Steel Co. for equipment for its Midland, Pa., plant, not much important work is being let just now. A considerable quantity of new construction work is scheduled for next spring, however, and the railroads are showing a disposition to buy more freely. Pittsburgh machinery manufacturers report a small total of business for October, compared with other months of this year. In Cleveland, some improvement has been noted recently, this being due mainly to a number of improvements and extensions being made by manufacturers. The Cleveland board of education has awarded contracts for wood working, foundry and machine shop equipment for the proposed new technical high school, the approximate value of the list being $17,000. The Superior Drop Forge Co., Cleveland, has just let contracts for forging machinery to the value of $15,000. The Chicago market is without important features, although the run of small orders continues fair. In the south, considerable demand for mining and power equipment is expected shortly.

Machine Tools

The B. F. Board Motor Truck Co., Alexandria, Va., advises that it is planning to erect an addition, which will increase the capacity of the plant from 200 to 400 trucks a year. The company will need lathes, drill presses, shapers and blacksmith equipment for the proposed structure. B. F. Board is president.

The Milwaukee Concrete Mixer & Machinery Co., which is planning to erect a plant, advises that it is in the market for machinery for manufacturing concrete mixers, such as lathes, boring mills, drill presses, saws, punches and milling machines. W. J. Rosebery is president and general manager.

Hewell Bros., Washington, Ga., have sent out a list of machine tools for which they are in the market. The equipment is to be second hand, and consists of three engine lathes; shaper, planer, radial drill, drill press, milling machine, pipe cutter, power hack saw and saw-filing machine.

An important list of machine tool specifications was distributed among eastern machinery dealers, Oct. 28, by the New York, New Haven & Hartford Railroad Co. The inquiry is for some 55 machines of various sizes and involves an estimated value of $60,000. Bids were requested to be in by Nov. 4.

The Blake Specialty Co., Rock Island, Ill., is erecting a new plant. This company manufactures pumping supplies of all kinds; also patented clean-outs and floor drains. It is not now operating its own foundry, but in the new plant the foundry will be 80 x 100 feet in size with a core room and cupola room each 20 x 30 feet and a mill room 30 x 45 feet; there will also be a machine shop 80 x 75 feet and a heating plant and pumping station, 30 x 45 feet. A large amount of equipment will be needed, especially motors, molding machines, one milling machine, an engine lathe and other machine tools. The plant will be in operation about the middle of December.

Power Plant Equipment

Auburndale, Fla., will construct an electric light and power plant.

Orangeburg, Ky., contemplates the construction of an electric light plant.

Decatur, Ala., contemplates the erection of an electric light plant at a cost of about $50,000.

The Madison River Power Co., Ruby, Mont. is planning to build a transformer station at Laurin.

The Tilton Electric Co., Tilton, N. H., contemplates the installation of an additional engine.

The city of Roseville, Cal., contemplates the erection of a municipal electric lighting plant.

The Esmeralda-Parral Mining Co., of Parral, Mex., will install new compressors, boilers and hoists.

Sturgis, Ky., has plans on foot for a water system. Tyler Stone is one of those interested in the project.

Obion, Tenn., will receive bids until Nov. 21, for equipment for water works. C. H. Jenks, Union City, Tenn., drew the plans.

Two 25-horsepower engines are wanted by the W. E. Small Spoke Mfg. Co., of Corinth, Miss., which is adding to the capacity of its factory.

The Vinton Mining Co., San Simon, Ariz., is planning an electric plant for furnishing power to ranchers for pumping purposes.

The city engineer of Montreal will call for tenders for equipping a low level station, a 12,000,000-gallon steam pumping engine being required.

Electric motors will be purchased for the addition to the plant of the Louisville Lead & Color Co., now being erected in Louisville.

The order of Elks at Hopkinsville, Ky., will install a steam heating plant in its club building. T. J. Tate is chairman of the committee in charge.

The United Water, Light & Traction Co., Somerset, Ky., will purchase an engine of large capacity for installation in its electric light plant.

The Union Utilities Co., Morgantown, W. Va., is planning to install motor-driven pumps at its pumping station.

The board of water and light commissioners, Groton, N. Y., is calling for bids for a 100 to 150-kilowatt, direct-connected, 250-volt, steam generating unit for a three-wire system.

Little Falls, N. Y., is contemplat-

ing the erection of a municipal electric lighting plant and a committee has been appointed to examine into the matter.

The Eastern Michigan Co., Ann Arbor, Mich., is preparing plans for erecting a power plant at that place. It is to have a capacity of 800 horsepower.

Clinton, Ill., is considering the installation of additional electric pumping machinery at its water plant. Charles Dickerson is commissioner of public buildings.

The Northern California Power Co. is preparing to build an electric power plant near Redding, Cal. Tunnels, diversion dam and plant will cost about $4,000,000.

The borough council of Tarentum, Pa., has been authorized to purchase four acres for a municipal water plant. C. E. Kennedy is the borough engineer.

The Ohio Valley Electric Railway Co. has awarded a contract to the W. W. Lindsay Co., Philadelphia, for a frame sub-station at Huntington, W. Va., to cost $16,000.

W. J. O'Leary, Louisville, who operates a dry cleaning plant, is planning additions to his power equipment, and will be in the market shortly for a boiler.

Plans have beeen prepared for an addition to the power plant of the Point Pleasant Water & Light Co., Point Pleasant, W. Va. Some new machinery will be required.

The Allegheny County Light Co., Pittsburgh, has awarded a contract to Dushane & Lewis, for an addition, 21 x 55 feet, to its sub-station at Carnegie, Pa.

Trenton, Tenn., will have plans drawn at once for an electric light plant to be owned and operated by the municipality. The plant will be built with the proceeds of a recently authorized bond issue.

The Jamestown Paint & Varnish Co., Greenville, Pa., is erecting an addition to its plant, 45 x 110 feet. New machinery will be installed, including boiler and engine of 150 horsepower.

Application has been made by F. G. Ross and Arthur Barnes, Pittsburgh, for a charter for the Connoquenessing Power Co., which will erect a power plant on Slippery Rock creek, near New Castle, Pa.

The city council, Kearney, Neb., is considering the installation of an electric light plant to be operated in conjunction with its water plant. The plans call for the installation of an additional generator and boiler.

The board of public works of San Francisco has awarded the contract for a triplex power pump and motor for the San Francisco almshouse to the Henry R. Worthington Co. at $1,475.

Boilers, engines and other equipment will be purchased by the Loomis & Hart Furniture Co., Chattanooga, Tenn., to replace that which was damaged in a fire several months ago. The purchases will be made through J. D. Gahagan, superintendent.

The Pacific Gas & Electric Co. has announced its intention of constructing two new electric generating plants on the Yuba river, the first to have a head of 1,647 feet, generate 50,000 horsepower, and the second to use the same water and generate 21,000 horsepower.

Boilers, water heaters and other equipment will be required for the new Inter-Southern Life Insurance Co.'s building in Louisville, now in course of erection. The contract will be awarded by the Seldon-Breck Construction Co., St. Louis, which has the general contract.

The Evansville, Henderson & Owensboro Traction Co., Evansville, Ind., has announced that it will begin work at once on the construction of its lines. The first work will be the electrification of a road formerly used by the Illinois Central between Evansville and Henderson.

The Ontario Power Co., Niagara Falls, Ont., has begun work on an addition to its power plant below the river bank at the foot of the Horse Shoe falls, which will provide for two additional generating units of 12,000 horsepower each, making a total generating capacity of approximately 148,000 horsepower.

W. Weissenberger Jr., New York, architect for the New York Edison Co., has filed plans with the New York City building department, for improvements to the seven - story power house of the company on Gold street, that city. The estimated cost is $18,000, the expenditure of which will provide additional room for installing machinery.

The Central New Hampshire Power Co., Robert C. Bacon, president, Brattleboro, Vt., was recently incorporated to develop extensive water power sites in Sullivan, Merrimack, Hillsboro and Grafton counties, N. H. A total of some 100,000 horsepower is expected to be generated on the completion of the work. The Stone & Webster Engineering Corporation, Boston, is the engineer.

The Chattanooga Traction Co. has been incorporated with $100,000 capital stock at Chattanooga, Tenn., for the construction and operation of a street railway system in that city and interurban lines to Dayton, Tenn., Dalton, Ga., and elsewhere. Power will be secured from a hydro-electric plant at Hale's Bar, Tenn. C. E. James is the chief promoter of the company.

New Construction

The Trenkamp Stove & Range Co., Cleveland, is erecting a $14,000 addition to be used for stove mounting.

The Palmetto Iron Works, Greenville, S. C., will erect a factory for brass and iron working.

The Asbestos Falls Metal Co., New Brighton, Pa., is planning to erect an addition to its plant.

The American Furnace Co., St. Louis, is planning to construct an addition at a cost of about $16,000.

The Dominion Axle & Forge Works, Ltd., recently organized at Guelph, Ont., has begun the erection of a factory in that city.

The Dixon Cascade Pump Co., Inc., 17 Canfield street, Newark, N. J., is preparing to erect a factory for manufacturing centrifugal pumps.

The Cleveland Pneumatic Tool Co., Cleveland, is erecting a two-story stock room, 40 x 50 feet, which will be completed in about six weeks.

The Sligo Iron Store Co., 1308 North Seventh street, St. Louis, is constructing a warehouse addition at a cost of $9,000.

The Niagara Sprayer Co., Roanoke, Va., will erect a plant in that city to manufacture spraying machines and supplies. N. C. Beachy is manager.

The Dominion Iron Works, Bristol, Va.-Tenn., is planning to increase its capital and will then enlarge its plant.

Contracts have been awarded for a factory building to be erected by the Buhl Stamping Co., Detroit. The structure will cost about $30,000.

An automobile repair plant will be erected by Eisele & King, Newark, N. J. It will be two stories, 28 x 90 feet, and will contain a machine shop.

The Hamilton Gas Mantle Co., Hamilton, Ont., capitalized at $40,000, is establishing a factory for the manufacture of gas mantles with Joseph Herzog as superintendent.

The White Adding Machine Co., incorporated at Nashville, Tenn., with $400,000 capital, by L. Allen Cook, E. M. Camp, Benjamin F. Barry and others, will erect a plant in that city.

The foundry of the Bloomer Machine Works, Bloomer, Wis., damaged

by a recent fire, will be repaired. The crane and some other equipment will have to be replaced.

The Automatic Trip Carrier Co., Rice Lake, Wis., which has increased its capital to $35,000, will erect a new factory building in spring and will probably enlarge the foundry.

The Wagner Electric Mfg. Co., St. Louis, has let a contract for the construction of an extension to No. 6 building of its plant. The extension will cost approximately $60,000.

McGregor & McIntyre, Toronto, Ont., have purchased 10 acres in the northwestern part of the city, upon which they will shortly erect a modern plant for steel construction work.

The Beaver Mfg. Co., Birmingham, Eng., is opening a branch plant at Niagara Falls, Ont., for the manufacture of aluminum novelties, with Samuel Cattell as manager.

The Weisenborn Mfg. Co., Houston, Tex., which will soon reorganize as the Port Huron Mfg. Co., is planning to erect a branch plant at Atlanta, Ga.

The Cyclone Woven Wire Fence Co., Cleveland, is erecting a two-story building, 80 x 150 feet. An electro-galvanizing plant, not yet purchased, will be installed in it.

The Schneider & Trenkamp Co., Cleveland, manufacturer of stoves and gas ranges, is erecting a three-story addition, 60 x 114 feet. It will be completed about Nov. 15.

The Western Steel Car & Foundry Co., Chicago, is about to erect a one and two-story, brick, shop and office building at 130th street and Howard avenue, that city.

The Kentucky Gear & Machine Co., Louisville, has in contemplation the erection of an addition to its plant. Definite decision will be reached in a few weeks.

A contract has been awarded to Scanlon Bros., New Castle, Pa., for a large storage building to be erected at Wampum, Pa., in which a grinder and other equipment will be installed.

The National Lock Washer Co., Herman and Johnson streets, Newark, N. J., will enlarge its plant by erecting a steel storage house to cost about $7,000.

The Celluloid Co., Newark, N. J., has filed plans at the city building department, for a factory building, which will be constructed at 47-51 Magazine street, Newark. Estimated cost is $8,000.

The Pittsburgh - McKeesport & Greensburg Street Railway Co. is building car barns at Irwin, Pa. The building will be 125 x 25 feet and will include machine shop and repair pit.

The Standard Oil Co. has awarded the contract to the Turner Construction Co. for a two-story warehouse, 90 x 250 feet, of reinforced concrete, to be erected at the Jersey City plant of the company.

The Shields Steam Specialty Co., Louisville, will equip a machine shop and foundry and will manufacture valves, couplings, etc. George W. Shields, county courthouse, Louisville, is president.

Plans are being prepared for an automobile manufacturing plant to be erected by the Kline Motor Car Co., Richmond, Va. S. W. Meek is vice president and general manager. The structure will cost about $65,000.

Hubbard & Co., Pittsburgh, are having plans prepared by Thomas Hannah, that city, for a brick and steel machine shop, 99 x 200 feet. It will be erected at Butler & Sixty-third streets, Pittsburgh.

The Great Northern Mfg. Co., Rochester, N. Y., advises that it will manufacture a moving picture machine attachment and will probably put up a plant in the spring. The company was recently incorporated.

The Ideal Wrapping Machine Co., incorporated at Middletown, N. Y., by Olin S. Fellows, Archibald E. Hopkins and Frederick B. Williams, with $150,000 capital, is planning to erect a plant in the near future.

The Underwood Typewriter Co., Hartford, Conn., is erecting a large extension to its plant consisting of a five-story brick and stone building, 50 x 275 feet, which will replace a structure of the same dimensions two stories in height.

W. R. Bowles, Hopkinsville, Ky., has patented a lamp which is to be used in photographic work, and has organized the Bowles Photograph & Engraving Lamp Co., which will erect a plant at Evansville, Ind. The company has a capital stock of $50,000.

The Pennsylvania Salt Mfg. Co., Natrona, Pa., is preparing plans for extensive improvements, which will include an addition to the power plant and laboratory, the erection of a new office building and the replacing of old structures with fireproof buildings.

The Oakland Elevator Co., incorporated at Oakland, Cal., with $100,000 capital, by W. J. Wigmore, A. R. Hanson and W. H. Buttner, will purchase a site along the water front, that city, and erect a modern factory for manufacturing freight and passenger elevators and hoisting machinery.

The Bernston Spring Steel Wheel Co., which has its main office at Washington, D. C., has taken title to a plot, 60 x 150 feet, on Broad street, Pittsburgh, and is taking bids on a factory building to cost $40,000. The foundations will be strong enough to carry three additional stories.

The Canadian Northern Railway Co., according to official announcement, has decided to construct its main shops at Ottawa, Ont. The work will probably be begun in 1913, when the transcontinental line will be completed. The erection of the shops will entail an approximate expenditure of $5,000,000. The offices of the company are at Ottawa.

A contract has just been awarded for the proposed new plant of the Gilbert & Barker Mfg. Co., at Springfield, Mass. The plant will contain an office building; a main factory building, 63 x 105 feet, two stories; sheet metal shop, 160 x 250 feet, one story; furnace building, 83 x 120 feet, one story; two storage buildings; a power house and a testing house.

The Molle Typewriter Co., now being financed at Wausau, Wis., will break ground for the factory at Wausau before the first of the year. It is the intention to erect a three-story building, 50 x 100 feet, of brick construction. None of the machinery or equipment has been purchased and the schedules will not be ready for some time.

A plant is to be built, it is stated, by the Railroad Metallic Tie Co., Princeton, Ky., which has been organized with John W. Hollowell, president, and G. S. Dunning, vice president. The patents on the device which is to be manufactured have been purchased by the company and work will begin in the immediate future.

A West Virginia charter was granted Oct. 29, to the De Bats Crucible Steel Co., Zelienople, Pa., to manufacture iron and steel. The company will have a capitalization of $125,000, of which amount, it is announced, $100,000 common stock has already been subscribed. The incorporators are given as Louis De Bats, Alfred G. Zehner, F. Edward Zehner and J. Roder, of Zelienople, Pa., and W. H. Shaffer, of Harmony, Pa.

The Oneida Foundry Co., Oneida, N. Y., is preparing plans for the erection of a foundry at that place. The proposed plant is to be used as

a branch plant of the National Foundry Mfg. & Supply Co., Williamsport, Pa. The engine, generator, motors and line shafting for the proposed plant are already provided for, but the concern will soon be in the market for cupola, blower, elevator and casting machinery. Address G. D. Gingrich, president of the National Foundry Mfg. & Supply Co.

James Stewart & Co., construction engineers, 20 Church street, New York, have taken the contract to erect the extensive plant at Edgewater, N. J., for the Midland Linseed Co., and provide equipment. It was announced several months ago that the Midland Linseed Co., would remove from Minneapolis, Minn., where its plant has been for a long time, to the Edgewater district. The construction company is asking for bids on power equipment and special machinery.

Miscellaneous

The United Mining & Milling Co., Davis, Okla., C. C. Surber, president, will increase the capacity of its zinc mill to 500 tons in 24 hours.

The Davis Mine & Mill Co., Davis, Okla., contemplates the erection of a zinc concentrating plant next year. George B. Vaughan is president.

The Ruby Coal Mine & Brick Co., which will have its headquarters at Atwood, Tenn., after Jan. 1, instead of Oklahoma City, Okla., will open bids for new equipment after Jan. 1.

Charles McDonald & Co., Joplin, Mo., will develop a tract containing zinc ore at Thomas Station, Mo. Plans are now being prepared for the mill.

The John G. Duncan Co., Knoxville, Tenn., has sent out inquiries for quotations on a second-hand three-drum hoist with a load capacity of 30 tons.

The Ohio River Contract Co., Evansville, Ind., will purchase a locomotive crane. Second-hand equipment will be accepted if in good condition.

The Husted-Seamans Coal & Coke Co., East Millsboro, Pa., is making some improvements to its plant, including the remodeling of its coal washer plant.

Equipment for a coal-handling plant which is being built in Louisville by the Asher Coal Co. will probably be purchased through T. J. Asher, president of the company, whose address is Wasioto, Ky.

The fiscal court of Carter county, Grayson, Ky., has authorized the purchase of a rock crusher and other equipment for preparing material for use in road-building. E. S. Hitchens is chairman of the committee in charge of the purchases.

The Atlanta Mfg. Co., Atlanta, Ga., plans the erection of a plant for the manufacture of mill supplies and equipment. Joseph O. Bailey and others are the incorporators of the company, which has a capitalization of $100,000.

The Morrow Mfg. Co., maker of automobile parts, Elmira, N. Y., has placed orders for about $10,000 worth of machine tools, in the New York market. Included are several grinders, gear cutters, shapers, and a large screw machine; most of these machines are to be motor driven.

E. B. Taylor, manager of the Bon Jellico Coal Co., with offices at Williamsburg, Ky., will purchase electrical equipment for the operation of the new mines to be opened by the company. The installation of the machinery will not be required immediately. The mines will have an initial capacity of 400 tons.

T. C. Dobbins, Gramercy place, Los Angeles, has been awarded the contract for the construction of the Sierra Power Co.'s power line from San Bernardino to Inyo county, Cal. The contract involves the sum of $250,000 and calls for 240 miles of steel towers, 80 feet high and the placing of six aluminum steel cord cables; 2,000 towers will be required to complete the contract.

Formal award will be made within the next few days by the Pittsburgh Crucible Steel Co. for the crane equipment for the Midland, Pa., plant, which includes the following: Two ladle cranes of 165 tons capacity, one ladle crane of 100 tons capacity, two open-hearth floor chargers, two soaking pit cranes, an electric stripper, seven standard overhead traveling cranes and six spout cranes. It is stated that orders for the above will be divided among the Morgan Engineering Co., Alliance, O.; Alliance Machine Co., Alliance, O.; and the Whiting Foundry Equipment Co., Harvey, Ill.

Government News

The bureau of supplies and accounts, navy department, opened bids Oct. 31, for furnishing, delivered at the naval stations mentioned, materials and supplies described in the schedules enumerated, as follows:

Schedule 3947, class 1, Mare Island, 2 engine lathes: Compressed Air Machinery Co., San Francisco, $808; Eccles & Smith, San Francisco, $871; Harron, Rickard & McCone, San Francisco, $976.50; Springfield Mach. Tool Co., Springfield, O., $975; Niles-Bement-Pond Co., New York City, $840; Pacific Tool & Supply Co., San Francisco, $1,000; Jos. T. Ryerson & Sons, Chicago, $845 and $925; Rix Comp. Air & Drill Co., San Francisco, $916, $893, $962.

Schedule 3973, class 21, do., 1 electrically operated, 3-barrel, dough mixing machine: Charles Brown & Sons, San Francisco, $853.30; Berger & Carter Co., San Francisco, $535; Champion Machinery Co., Joliet, Ill., $430; Lynn Superior Co., Cincinnati, $630; Pacific Motor & Engine Co., San Francisco, $535.

Class 22, do., 1 vertical, single-barrel steam capstan. Hyde Windlass Co., Bath, Me., $395; Williamson Bros. & Co., Philadelphia, $405.

Schedule 3998, class 91, Philadelphia, two electric hoists, 2-ton: Alfred Box & Co., Philadelphia, $1,200; Brown Hoisting Machinery Co., Cleveland, $760; Hoisting Machinery Co., New York, $540; Niles-Bement-Pond Co., New York, $570.

Class 92, Philadelphia, one band self-feeding ripping and re-sawing machine: American Woodworking Machinery Co., Rochester, $620 and $725; Berlin Machine Works, Beloit, Wis., $1,175.30; Fay & Egan Co., Cincinnati, $1,439; Manning, Maxwell & Moore, New York, $1,277 and $1,121.

Schedule 3998, class 93, Philadelphia, one double cylinder, four-roll surfacer, motor-driven: Berlin Machine Works, Beloit, Wis., $1,989 and $2,089; Fay & Egan Co., Cincinnati, $1,778 and $1,878; Alco Mfg. Co., New York, $2,650 and $2,350; Manning, Maxwell & Moore, New York, $2,123 and $1,492.

Schedule 4003, class 102, Washington, three drill presses, four-spindle: DeZouche, Hanson & Co., Philadelphia, $400; Frevert Machinery Co., New York, $238; Garvin Machine Co., New York, $240; E. F. Kirwan & Co., Baltimore, $160; Kemp Machinery Co., Baltimore, $236.25 and $572; Manning, Maxwell & Moore, New York, $331 and $288.30; Niles-Bement-Pond Co., New York, $255.

Schedule 4004, class 111, Philadelphia, miscellaneous saw machinery tools and accessories: Baldwin, Tuthill & Bolton, Grand Rapids, Mich., $790.75 and $786.40; Chicago Machinery Exchange, Chicago, $949.20; Fay & Egan Co., Cincinnati, $765.75; Hanchet & Swage Works, Big Rapids, Mich., $805.05; E. F. Kirwan & Co., Baltimore, $531; Kemp Machinery Co., Baltimore, $970.72; Manning, Maxwell & Moore, New York, $813 and $798.50.

Schedule 4005, class 121, Norfolk, one set pneumatic flanging clamps: Hilles & Jones Co., Wilmington, Del., $522; Niles-Bement-Pond Co., New York, $795; Jos. T. Ryerson & Sons, New York, $780; Scully Steel & Iron Co., Chicago, $456; Wickes Bros., Saginaw, Mich., $872 and $797.

Class 122, Philadelphia, one rapid-action punch and riveter: Covington Machine Co., Covington, Va., $1,050; Ferracute Machine Co., Bridgeton, N. J., $1,790; Hillis & Jones Co., Wilmington, Del., $1,248; Kemp Machinery Co., Baltimore, $1,030; Niles-Bement-Pond Co., New York, $1,975; Jos. T. Ryerson & Sons, New York, $1,327; Scully Steel & Iron Co., Chicago, $1,297; Toledo Machine & Tool Co., Toledo, O., $1,176.25; Wickes Bros., Saginaw, Mich., $1,385.

Class 123, Philadelphia, one power press or brake: Ferracute Machine Co., Bridgeton, N. J., $3,553; A. Garrison Foundry Co., Pittsburgh, $2,694; Manning, Maxwell & Moore, New York, $2,034, $2,014 and $2,099; Geo. A. Ohl & Co., Newark, N. J., $2,021.60; Prentice Tool & Supply Co., New York, $2,010; Jos. T. Ryerson & Sons, New York, $1,962; Toledo Machine & Tool Co., Toledo, $2,669.50.

Class 124, Philadelphia, one radial three-spindle boiler plate drill: Fairbanks Co., Washington, $8,175; Manning, Maxwell & Moore, New York, $6,346; Niles-Bement-Pond Co., New York, $6,800.

The bureau of supplies and accounts, navy department, will receive proposals, for opening Nov. 28, for the furnishing of materials and supplies for delivery at various naval stations, as named, in accordance with the schedules following the items, as follows:

Furnaces, tool hardening and annealing, 2, Portsmouth, 4070.

Hoists, geared, portable, pneumatic, 4, Norfolk, 4069.

Machine, rivet and bolt forging, one, Norfolk, 4069.

(In order to assist the post office in delivering letters to new concerns, it is suggested that the names of incorporators be written in the lower left hand part of every envelope addressed to such new companies.)

New Buyers

The following manufacturing companies have filed articles of incorporation:

The Columbus Fence Co., Columbus, O.; $10,000; by R. T. Fisher, Hunter Davis, M. J. Pollock, E. Jones and E. L. Pollock.

The American Steel Safe Co., St. Joseph, Mo.; $2,000; by Thomas Francis Ryan, John B. Cornelius and A. Ryan.

The Oakland Elevator Co., Oakland, Cal.; $100,000; by directors, W. J. Wigmore, A. R. Hanson and W. H. Buttner.

The American Dartium Steel Castings Co., Kansas City, Mo.; $150,000; by Edward Richards, John Tompson and Eugene W. Colville.

The Canton Corrugating Co., Canton, O.; $100,000; by H. L. Raley, Everett L. Mills, Urban A. Werner, Austin Lynch and David B. Day.

The Dodge & Goddard Mfg. Co., Harvard, Ill.; $150,000; to manufacture high-speed milling cutters, hobs, dies, etc.; by president, Wm. S. Dodge.

The MacLean Foundry Co., Upper Sandusky, O.; $80,000; by L. H. Hull, Richard Carter, Charles F. Shealy, H. Von Blon, A. B. Whitney and E. F. Stephen.

The Dayton Turbine Pump Co., Dayton, O.; $100,000; by Edward R. Kirby, Arthur J. Stevens, Nelson Emmons Jr., Samuel H. Thompson and J. Frank Kiefaber.

The Railroad Metallic Tie Co., Princeton, Ky.; $1,000,000; to manufacture metallic railroad crossties; by president, John W. Hollowell, vice president, Guy S. Dunning.

The Montana Bridge & Steel Co., Livingston, Park county, Mont.; $100,000; by A. H. Allen, Minneapolis; J. F. Sohl and Geo. McCarn, of Livingston.

The Sterling Brass Co., Cleveland; $35,000; to manufacture brass specialties; by Alfred A. Benesch, Reuben Shapiro, Henry A. Rocker, E. M. Chaloupka and A. J. Kornhauser.

The S. R. Mfg. Co., Schenectady, N. Y.; $50,000; to manufacture motors, engines, motor vehicles, etc.; by Christian Steenstrup, Karl M. Rossi, Ralph J. Ury, all of Schenectady.

The Start-O Co., Cleveland; $10,000; to manufacture acetylene motor starters and automobile and airship accessories; by Henry P. Beckenbach, Hubert B. Fuller, E. L. Stoiber, etc.

The Letz Mfg. Co., Crown Point, Ind.; $20,000; to manufacture feed grinding machinery; by directors, Geo. Holland-Letz, John Holland-Letz, E. Holland-Letz, Otto Holland-Letz and William Holland-Letz.

The Shields Steam Specialty Co., Louisville, Ky.; $10,000; to manufacture specialties such as valves, couplings, etc.; by president George W. Shields, county courthouse, Louisville.

The Hatch Oil Engine Co., Manhattan, New York City; $100,000; to manufacture machinery; by Clarence W. Hatch and Walter P. Hatch Jr., 1281 Fifty-third street; Axel Anderson, 240 Prospect park, west, Brooklyn.

The Marshall Machinery & Supply Co., Phillipsburg, N. J.; $25,000; to manufacture machinery, shelf hardware, etc.; by Frank J. Marshall, Easton, Pa.; Chas. S. Firth, O. D. McConnell, Phillipsburg, N. J.

The St. Lawrence Dry Dock & Ship Building Co., incorporated at Montreal; $1,000,000; by Lionel Kent, Joseph Desaultels, Charles Donohue, of Montreal, and J. B. Craven, of New York.

The Easton Tool & Machine Co., Easton, Pa.; $25,000; by treasurer, Richard J. Lippey, Easton, Pa.; directors, C. J. Jackson, Anna K. Jackson, Vineland, N. J.; Clayton L. Sonen, Richard J. Lippey, Albert E. Diefenderfer, all of Easton, Pa.

The Economic Blower Co., Jersey City, N. J.; $100,000; to manufacture machinery, engines and chemical devices; by Arthur C. Reeves and Thos. F. Farrell of 15 Exchange place, Jersey City; Wm. Grupe, 1401 Clinton street, Hoboken, N. J.

The Gallagher-Tompkins Co., Manhattan, New York City; $175,000; to manufacture engines, machinery, etc.; by F. B. Tompkins, 66 Broadway; Richard W. Gallagher, 609 West 114th street; Geo. D. Zahm, 261 Broadway, New York City.

The Hasl-Coe Construction Co., Manhattan, New York City; $50,000; to manufacture rock-breaking machinery; by Alex. W. Hassell, 124 Bay View avenue; Edward Coe, 42 Mercer street, Jersey City, N. J.; Wm. T. Criswell, 150 Nassau street, New York City.

The Gem Confection Co., Manhattan, New York City; $500,000; to manufacture vending machines; by Frank W. Tucker, 941 Intervale avenue; Chas. E. Sheehan, 148 West Sixty-seventh street; John V. Ward, 111 East Fourteenth street, New York City.

The W. A. Dodge Tool & Supply Co., Manhattan, New York City; $70,000; to manufacture and deal in tools, supplies, etc.; by Frank C. Jones Jr., 37 Madison avenue; Warren A. Dodge, 45 Centre street, New York City; Duncan Macwatty, Hasbrouck Heights, N. J.

The Union Oxy-Carbide Co., Manhattan, New York City; $50,000; mechanical engineers; to manufacture machinery; by Gotthilf H. Schwarz, 353 West Forty-fourth street; Alex M. Bremer, 1767 Sedgwick avenue, Bronx; Peter A. Roos, 442 West Forty-ninth street, all of New York City.

The Waynesboro Metal & Foundry Co., Waynesboro, Pa.; $50,000; by treasurer, Geo. H. Armcast, Westminster, Md.; directors, Geo. B. Beaver, John G. Benedict, L. D. Gilbert, all of Waynesboro, Pa.; Fred D. Miller, A. V. Moore, Allan T. Bacon, Geo. H. Armcast, all of Westminster, Md.

The Monroe Calculating & Recording Machine Co., Manhattan, New York City; $50,000; to manufacture calculating and recording machines; by Jay R. Monroe, East Orange, N. J.; Frank S. Baldwin, navy yard, Brooklyn; Harry G. Dechant, 170 West Seventy-eighth street, New York City.

General Industrial

The Virginia Bridge & Iron works has taken an order from the Seaboard Air Line for 200 tons of bridge work.

The Pittsburgh Emery Wheel Co. has filed notice of increase of capital from $75,000 to $100,000.

The American Foundry Co., Leipsic, O., has changed its name to the Temco Electric Motor Co.

The W. W. Sly Mfg. Co., Cleveland, has increased its capital stock from $25,000 to $35,000.

The Reiter Boiler Cleaner Co., Chicago, has increased its capital stock from $25,000 to $100,000.

The Missouri Valley Bridge & Iron Co. has filed articles of incorporation at Portland, Ore. The capital stock is placed at $100,000.

The American Hardware Manufacturers' Association will hold its twenty-first annual convention at Atlantic City, Nov. 15-17.

The Hamrick-Tobey Co. has been incorporated at Wausau, Wis., with a capital stock of $5,000 to manufacture sanitary drinking fountains.

The Canada Cement Co. is enlarging its Port Colborne, Ont., plant to twice its present size. When completed, the entire plant will employ 500 men.

The Kuhner Engine Co., Oxford, Md., has been organized to manufacture stationary and marine engines. H. E. Kuhner will be general manager of the plant.

The Conner & Wallace Machine & Foundry Works, Columbia, Miss., has been incorporated, with Claude Wallace as manager, and M. W. Conner as secretary and treasurer.

The Steel Alloys Co., Wheeling, W. Va., has taken over the property of the West Virginia Bridge & Construction Co., consisting of 6½ acres, machinery, etc.

The Waterloo Malleable Iron Works, Waterloo, Ia., has recently placed orders with the John Deere Plow Co. for a large number of pump jacks and also for a number of brick making machines for a western brick manufacturer.

The National Boat & Engine Co., of Fond du Lac, Wis., which was capitalized at over $1,000,000, and which absorbed several similar plants in different parts of the country, has gone into bankruptcy. Claims against the company will be filed in a short time.

The Excelsior Machinery Mfg. Co., of Waterloo, Ia., has consolidated with the Iowa Foundry Co. at Fort Dodge, Ia., and the two plants will be combined at the latter place. The Excelsior line of machinery will be manufactured.

The New Era Gas Engine Co., formerly of Dayton, O., has moved its plant to Portsmouth, O., where new buildings have been erected. All equipment necessary has been installed and the company will begin operations at once.

The Erie Pump & Engine Works, Erie, Pa., whose incorporation was recently noted, advises that its line of products will consist of centrifugal pumps and steam engines, principally the former. The line of pumps will be gradually extended until the field is covered to its fullest extent.

The Standard Arms Co., South Wilmington, Del., which was recently sold at a receiver's sale to Irenee Du Pont, for $130,000, has been sold by the buyer to New York capitalists, who have incorporated under the name of the Standard Arms Mfg. Co., and who will re-operate the plant in the near future.

The Corry Castor Co., Corry, Pa., whose plant was recently destroyed by fire, is reported to be contemplating building in Warren, Pa., where a portion of the stock is owned, although no definite plans have been made. The business interests in Corry are attempting to keep the plant at that place.

The Lakeside Forge Co., Erie, Pa., recently incorporated, has taken over the plant of the Lakeside Forge & Wrench Co., of Erie, and will manufacture forged wrenches and drop forgings of all kinds. New equipment, such as drop board hammers, die sinking machines and an engine and a generator will be added.

The Yale Mfg. & Sales Co., Manufacturers' Home building, Milwaukee, which manufactures automobile accessories and signal devices, has purchased the buildings and real estate of the Oostburg Foundry Co., Oostburg, Wis., and will move its manufacturing plant to that place. The general offices will remain in Milwaukee.

The Richmond Engineering & Mfg. Corporation, Richmond, Va., recently incorporated with a capital stock of $100,000, has purchased the equipment and plant of the Virginia Blower & Heater Co., and will manufacture blowers, exhausters, fuel economizers, engines and electrical equipment and also sheet metal, plate, angle and bar iron work of special design.

A petition has been filed against the Bon Air Coal & Iron Co., Nashville, Tenn., for $2,750 with interest from April, 1909, by the S. J. Keith estate. Permission is asked to sell bonds that the plaintiff holds against the defendant company to apply to the payment of the debt, and also that a claim be filed in company with others against the Bon Air company.

The Copp Stove Co., Ltd., Fort William, Ont., whose incorporation was recently noted, advises that it has bought the plant of W. J. Copp Son & Co. for $131,000, and will manufacture stoves and ranges. The new company has added 20 floors to the molding shop and 4,000 feet of floor space to the mounting and erecting department. Some new machinery will be added in a short time.

The Pollak interests in the Block & Pollak Co., at Carthage, O., manufacturers of railway car axles and heavy steel forgings, have purchased the stock of Joseph Block, and the firm will be reorganized as the Pollak Steel Co. The new company has been incorporated with a capital stock of $400,000 by Emil, E. P., and B. E. Pollak, and R. A. LeBlond. Extensive improvements will be made in the plant.

Trade Notes

The International Harvester Co. of America, selling agency for the International Harvester Co., has moved its Louisville agency to New Albany, Ind., because of the many legal attacks against it in the various counties in Kentucky.

The Northern Equipment Co., Chicago, has appointed the Dravo-Doyle Co., Pittsburgh, sales representative for its line of steam specialties.

The Toledo Bridge & Crane Co., Toledo, O., announces the appointment of A. W. Wyckoff & Co., 2219 Farmers Bank building, Pittsburgh, as its agents in the sale of cranes in the Pittsburgh district.

The main offices of A. Eugene Michel and staff, advertising engineers, have been moved into the Park Row building, 21 Park Row, New York, where larger space has been secured, as necessitated by constantly increasing business. Temporarily the photo retouching and illustrating department will remain in the Hudson Terminal buildings, 30 Church street, but all business will be managed at the new offices.

Fires

The foundry building of the Bloomer Machine Works, Bloomer, Wis., was recently badly damaged by fire and will have to be practically rebuilt. The crane and other equipment will probably be renewed.

Part of the plant of the Havana Metal Wheel Co., Havana, Ill., was destroyed by fire Oct. 30, which originated in the paint department. The loss will reach several thousand dollars.